OCEANOGRAPHIC OBSERVATIONS, 1956, EAST COAST OF THE UNITED STATES

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ERRATA SHEET:

Special Scientific Report--Fisheries No. 233 ("Oceanographic Observations, 1956, East Coast of the United States" by D. F. Bumpus)

p. 44: June 22, 30' should read 52.9 not 42.9.

pp. 67-73: Longitude should read 73°56'W. not 75°56'W.

p. 98: August 7 at 65' should read 69.1 not 64.1.

United States Department of the Interior, Fred A. Seaton, Secretary

U. S. Fish and Wildlife Service

OCEANOGRAPHIC OBSERVATIONS, 1956

EAST COAST OF THE UNITED STATES

by

D. F. Bumpus
Oceanographer
Woods Hole Oceanographic Institution

Special Scientific Report--Fisheries No. 233

Contribution No. 918 from the Woods Hole Oceanographic Institution

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Oceanographic Observations, 1956
East Coast of the United States

Abstract

The daily water temperature and salinity observations from sixteen locations along the Atlantic seaboard during 1956 are tabulated and discussed. Diagrams of the one-third monthly means are presented. This is the first time that it has been possible to present a synoptic description of the annual cycle of temperature and salinity for the coastal waters of the United States.

Introduction

Through the cooperation of the U. S. Coast Guard, the Woods Hole Oceanographic Institution established in late 1955 a series of Oceanographic Observation Posts at a number of the lightship stations along the east coast of the United States. Each lightship was furnished with a kit of oceanographic equipment and was requested to make the following observations:

Daily bathythermograph lowering.
Daily surface water temperature reading and surface water sample.
Daily record of air temperature, weather, wind and clouds.
Weekly bottom water sample.

These data have been forwarded on a monthly basis to Woods Hole where they have been processed. The bathythermograms have been read at several levels and tabulated in the accompanying tables. The surface water temperatures were used as a check on the bathythermograph. The water samples were titrated for salinity and tabulated. The records of air temperature, weather, wind and clouds were used in studying the other data, but are not presented here as they are the same as those published in the daily weather maps issued by the U. S. Weather Bureau. In addition to tabulating these data, mean temperatures for each level for 3 equal time periods per month have been determined and plotted as time profiles for the year for each station. The one-third monthly mean surface temperatures have also been plotted in comparison with the monthly mean surface temperature for the period of record of each station. The surface salinity one-third monthly means have been appended to the profiles, together with the weekly bottom salinity values.

The monthly mean surface water temperatures for the year 1956 for all stations are listed in Table 1, for comparison with previous records (Bumpus, 1957).

Certain independent observers have kindly forwarded to us daily water temperature readings at shore stations. These data are also tabulated herein and the one-third monthly means depicting the annual progression of surface water temperatures are presented.

The following stations are reported herein. (See Fig. 1)

Station	Period	Data
Grand Harbour, Grand Manan	1 Aug 1955-31 Dec 1956	T_0'
Portland Lightship	17 Dec 1955-28 Dec 1956	T_0', T_{30}' T_{50}', T_{100}', T_{150}', S_0', S_{150}'
Boston Lightship	12 Nov 1955-31 Dec 1956	T_0', T_{30}', T_{50}', T_{95}', S_0', S_{95}'
Georges Shoal, Texas Tower #2	21 Apr 1956-31 Dec 1956	T_0', S_0'
Nantucket Lightship	3 Jan 1956-12 Dec 1956	T_0', T_{30}', T_{50}', T_{100}', T_{150}', T_{180}', S_0', S_{180}'
Woods Hole, Mass.	2 Jan 1956-31 Dec 1956	T_0'
Buzzards Lightship	1 Mar 1956-31 Dec 1956	T_0', S_0'
Kingston, R. I.	6 Sept 1956-31 Dec 1956	T_0'
Ambrose Lightship	14 Dec 1955-30 Nov 1956	T_0', T_{30}', T_{50}', T_{95}', S_0', S_{95}'
Barnegat Lightship	14 Dec 1955-16 Dec 1956	T_0', T_{30}', T_{50}', T_{70}', S_0', S_{70}'
Five Fathom Bank Lightship	15 Dec 1955-31 Dec 1956	T_0', T_{30}', T_{50}', T_{85}', S_0' , S_{85}'

Station	Period	Data
Winter Quarter Lightship	1 Dec 1955-31 Dec 1956	$T_{0'}$, $T_{30'}$, $T_{50'}$, $T_{95'}$, $S_{0'}$, $S_{95'}$
Chesapeake Lightship	28 Nov 1955-31 Dec 1956	$T_{0'}$, $T_{30'}$, $T_{50'}$, $T_{65'}$, $S_{0'}$, $S_{65'}$
Diamond Shoals Lightship	29 Nov 1955-29 Dec 1956	$T_{0'}$, $T_{30'}$, $T_{50'}$, $T_{100'}$, $T_{150'}$, $T_{180'}$, $S_{0'}$, $S_{180'}$
Frying Pan Shoals Lightship	30 Nov 1955-31 Dec 1956	$T_{0'}$, $T_{30'}$, $T_{50'}$, $T_{70'}$, $S_{0'}$, $S_{70'}$
Savannah Lightship	18 Jan 1956-31 Dec 1956	$T_{0'}$, $T_{30'}$, $T_{48'}$, $S_{0'}$, $S_{48'}$

Figure 1. Locations along the Atlantic Coast reported herein.

Table 1.

Surface Water Temperatures - Monthly and Annual Means for 1956

	Grand Manan	Portland Lightship	Boston Lightship	Georges Shoal	Nantucket Lightship	Woods Hole	Buzzards Lightship	Kingston	Ambrose Lightship	Barnegat Lightship	Five Fathom Bank Lightship	Winter Quarter Lightship	Chesapeake Lightship	Diamond Shoals Lightship	Frying Pan Shoals Lightship	Savannah Lightship
Jan	35.7	38.1	37.9	-	41.7	32.3	-	-	-	38.6	40.0	40.9	39.0	47.2	61.5	-
Feb	32.8	38.8	36.5	-	40.4	33.8	-	-	-	39.1	38.9	40.1	41.0	59.0	62.3	54.0
Mar	32.9	36.2	36.5	-	38.9	35.3	35.7	-	38.2	38.9	40.2	41.7	44.1	56.4	60.7	58.6
Apr	40.8	38.8	39.8	-	40.4	41.6	41.4	-	41.4	42.2	44.4	44.4	48.0	63.4	63.4	62.7
May	44.8	44.2	44.8	43.9	45.5	49.8	48.6	-	48.7	50.5	51.6	51.8	56.5	69.9	70.7	72.4
Jun	50.6	50.8	54.7	50.5	52.3	60.9	57.3	-	60.8	-	63.9	64.7	69.7	76.6	76.9	79.9
Jul	53.7	59.1	61.0	56.1	57.9	68.0	63.9	-	68.2	70.2	69.3	71.4	73.1	79.9	80.2	82.9
Aug	55.7	58.5	64.2	58.9	60.4	70.1	65.6	-	71.6	71.7	72.5	75.5	76.2	77.1	80.7	83.6
Sep	52.1	56.7	58.7	59.9	65.2	66.5	64.6	63.9	68.3	70.5	70.7	71.7	72.0	76.6	79.6	80.2
Oct	49.6	52.4	54.1	57.6	60.2	58.6	57.9	56.3	60.9	-	63.1	63.2	64.0	68.9	76.2	74.0
Nov	44.2	48.8	50.1	53.8	55.1	51.7	53.4	50.4	55.9	55.2	57.1	58.0	55.7	66.7	68.4	64.1
Dec	38.4	43.9	44.4	48.9	-	43.8	47.2	42.1	-	-	51.0	52.0	53.4	62.7	68.4	58.6
Ann	44.3	47.2	48.6	-	-	51.0	-	-	-	-	55.2	56.3	57.7	67.0	70.8	-

This is the first time that it has been possible to present a synoptic description of the temperature and salinity regime surface to bottom for the east coast of the United States. Rathbun (1887) and Parr (1933) have previously described and discussed the surface temperatures along this same coastline for earlier periods. Bumpus, 1957, has tabulated the monthly and annual means of all the available surface temperature data for the period of record.

We are particularly indebted to the U. S. Coast Guard personnel manning the lightships for their careful participation in this responsibility which is in addition to their regular chores; to Mr. Edward Green at Grand Harbour, Grand Manan; Mr. George Ferris at Woods Hole; Mr. Steacy Hicks at Kingston, R. I., and the 12th Weather Squadron USAF at Georges Shoal and Otis AFB.

We are desirous of continuing the collection and publication of these data on an annual basis. We should be glad to include data of comparable nature from other locations were they available.

This work was supported by the U. S. Fish and Wildlife Service under Contract No. 14-19-008-2377 with the Woods Hole Oceanographic Institution.

Commentary

We have attempted below in the commentary for each station to point out the obvious features which characterize in general the hydrographic conditions during the year 1956. Obviously the biological investigator concerned with a particular group of plants or animals, or a more prescribed area, may wish to look to the data for more details than we have generalized here.

Parr (1933) went into some detail about the reliability of estimating the bottom temperature at lightship positions along the Atlantic Coast from the surface temperatures. He had no continuous records of bottom temperature at these positions. We now have, for the first time, a diagram of the surface and bottom temperature throughout the year (Figure 2) along the string of lightship positions from Portland to Savannah.

The major feature which Parr did not discuss is the displacement of the maximum bottom temperature to much later than the time of maximum surface temperature; from one to three months later at all locations from Diamond Shoals northward except Georges Shoals where the water is always isothermal. Because the thermocline is so weakly developed on the shelf south of Hatteras the time of maximum temperature is practically the same at the bottom as at the surface.

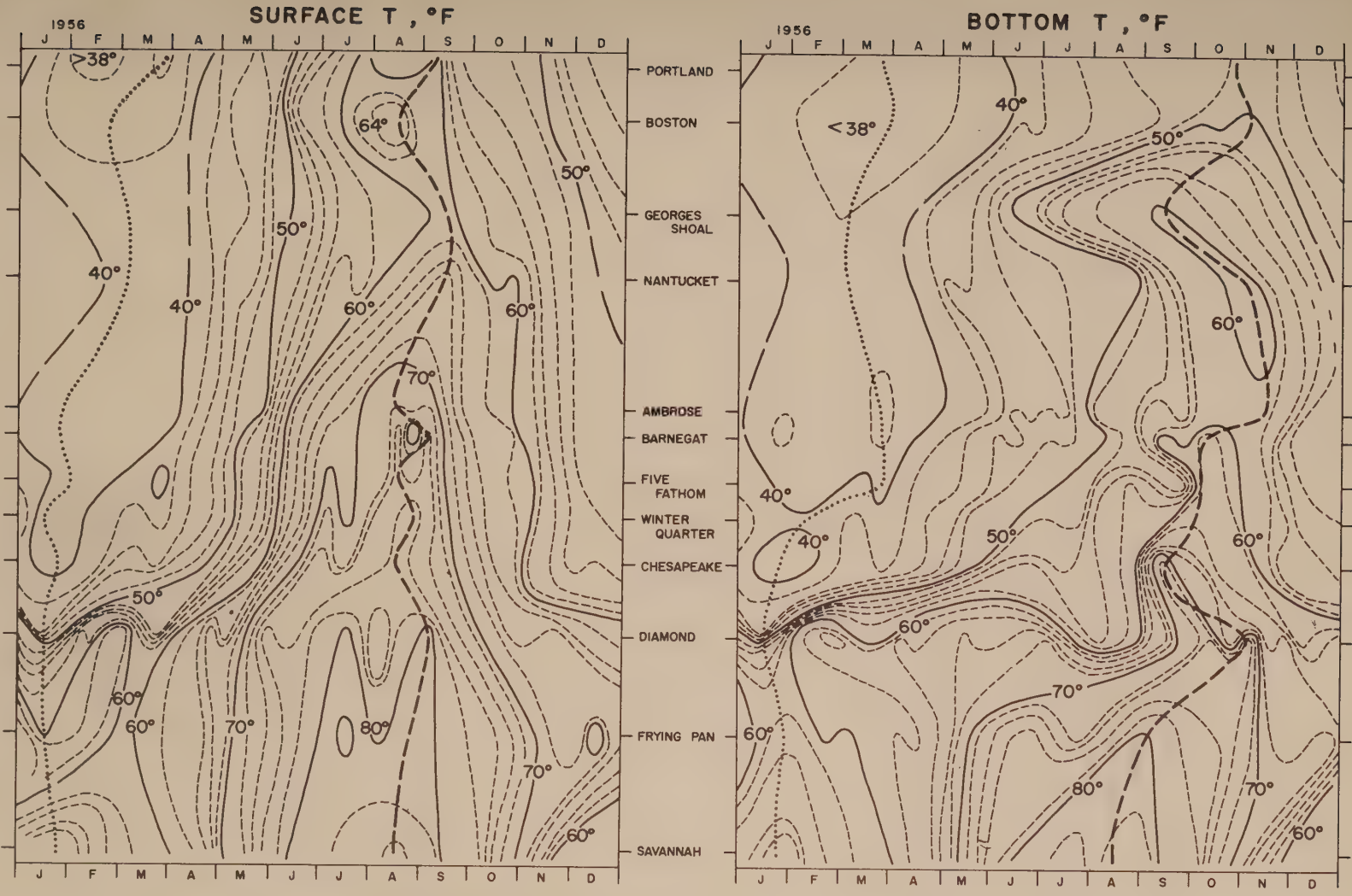

Figure 2. Annual cycle of temperature at the surface (left) and bottom (right) along the string of observation posts for 1956. Heavy dotted and dashed lines indicate minimum and maximum temperature respectively.

Grand Harbour, Grand Manan

The monthly means tabulated here suggest that the temperatures in Grand Harbour are lower during the winter months and higher during the summer months than those recorded at Southwest Head, Grand Manan, almost eight miles away during the period 1929-1936 (Hachey, 1939). The annual mean temperatures are almost the same for both places.

Temperature fluctuations at Grand Harbour are subject to day to day variations of several degrees due to the broad expanse of shallow water where extreme heating or cooling may take place, the large tidal range and broad opening to the South and thoroughfare to the northeast permit substantial exchange with the open sea dependent on the wind and tide.

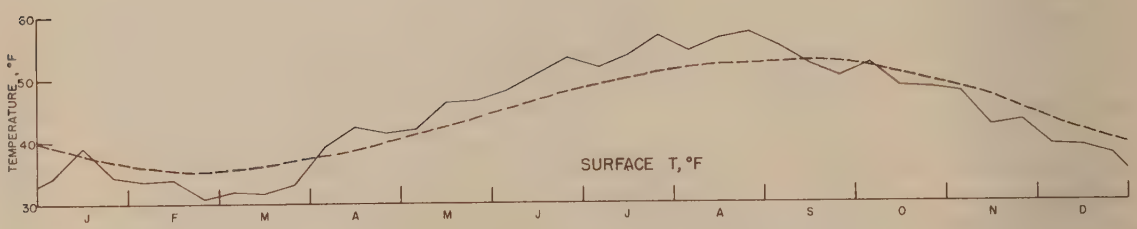

Figure 3. Grand Harbor, Grand Manan, 1956 (thin line); Southwest Head, Grand Manan, 1929-1936 (dashed line).

Table 2

GRAND HARBOUR*, GRAND MANAN, N. B., CANADA 44°40.8'N. 66°44.6'W.

Surface Temperature °F - 1955

Month / Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann.
1								62.1	57.6	54.5	49.	32.5	
2								61.	58.5	50.	48.	-	
3								61.5	60.	51.6	48.2	41.5	
4								64.6	57.8	53.9	49.	38.	
5								58.5	59.5	52.	49.	39.5	
6								57.	59.9	50.5	48.	37.8	
7								57.	58.8	-	48.8	37.	
8								58.1	56.	-	49.1	35.6	
9								61.9	62.	56.2	47.	37.	
10								63.5	56.5	52.	48.	34.4	
11								57.5	54.9	54.	47.	33.5	
12								56.	60.	52.4	41.1	30.5	
13								55.5	60.	53.5	44.5	33.5	
14								59.	53.1	52.	44.5	36.	
15								61.	54.5	49.	41.5	37.8	
16								60.1	55.	49.	43.	37.9	
17								54.1	55.	50.5	47.	33.	
18								55.5	59.5	51.	39.5	34.5	
19								55.9	54.8	50.9	39.	36.	
20								62.4	-	53.9	36.5	30.	
21								61.	-	51.1	38.	29.5	
22								63.	-	48.5	38.	29.5	
23								56.9	-	45.	33.	29.5	
24								56.	51.	49.6	40.5	31.	
25								62.	57.9	-	37.9	35.5	
26								62.	49.9	-	35.	30.	
27								60.5	51.	-	37.	34.5	
28								54.5	53.5	45.9	39.2	-	
29								58.	52.5	46.9	42.5	32.5	
30								62.	52.	49.	35.5	35.	
31								58.	-	48.5	-	31.2	
Mean								62.5	56.2	50.8	42.8	34.3	

*Observations taken in shallow water about one mile up the west side of the harbor from Grand Harbour Light. One reading per day, courtesy Mr. Edward Green.

Table 2 (cont.)

GRAND HARBOUR, GRAND MANAN, N. B., CANADA 44°40.8'N. 66°44.6'W.

Surface Temperature °F - 1956

Month / Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann
1	32.	32.5	29.5	44.	46.5	45.5	53.5	57.	-	52.4	49.5	38.	
2	30.4	34.	35.	37.5	39.8	46.4	54.5	53.5	56.	50.5	47.2	40.9	
3	31.	36.5	40.5	38.5	43.	45.4	52.	52.5	54.5	51.8	46.5	39.8	
4	34.8	32.5	35.9	40.2	41.5	51.3	53.	52.5	60.	56.	45.	38.5	
5	31.	33.5	34.	40.	40.5	50.5	50.	54.	55.2	50.	45.	33.	
6	35.	32.	31.	38.4	41.6	47.	51.5	53.	55.5	49.5	47.5	38.	
7	32.	33.	35.5	37.8	38.5	52.5	50.2	54.	51.	53.	50.	-	
8	38.	31.5	33.5	39.	38.	45.5	50.	52.	54.4	52.	50.	43.	
9	38.	-	32.	36.9	45.2	46.	50.	59.	-	54.	50.	40.	
10	40.	36.	29.5	37.5	43.	49.5	51.	-	51.6	52.9	44.5	40.	
11	39.9	32.5	31.4	37.4	43.8	45.1	55.	60.6	52.6	47.5	42.	35.5	
12	-	33.8	-	38.	42.	54.6	56.5	55.3	54.	49.5	43.	45.	
13	40.5	37.	-	41.	44.8	47.5	54.5	55.	55.	46.6	45.5	42.	
14	40.5	37.1	-	43.8	42.4	56.	53.	56.5	56.	48.4	40.	36.5	
15	40.	33.5	34.	47.9	54.	50.	51.4	54.2	48.5	49.	42.4	37.	
16	40.	36.	32.6	39.5	44.9	52.	52.1	54.5	52.3	50.3	45.	40.1	
17	39.2	30.5	30.9	47.2	49.	49.2	52.5	56.5	52.1	51.	46.8	42.	
18	37.5	31.5	30.2	47.2	52.5	50.5	52.6	57.2	50.5	51.	36.	42.	
19	35.6	35.5	31.	40.8	42.	45.8	52.	56.2	48.5	45.6	36.	30.5	
20	38.	30.5	31.5	39.6	45.4	55.2	54.	-	51.	46.5	45.	38.	
21	38.	32.5	30.9	39.	46.	51.7	-	-	48.	47.6	43.5	39.	
22	36.5	31.4	32.	39.	46.8	50.2	55.5	-	51.	49.2	47.	35.	
23	38.8	30.	35.1	39.4	46.5	56.	52.	-	54.2	50.8	45.4	38.5	
24	34.	29.5	33.6	39.	46.	48.8	-	-	51.3	54.3	41.	39.5	
25	29.5	30.8	29.6	41.	44.5	48.5	-	64.8	51.5	46.4	42.2	41.5	
26	34.	33.	29.9	43.2	51.	54.5	60.	57.7	48.	49.	40.5	38.2	
27	34.	30.2	31.3	44.5	47.5	62.	61.	54.	48.2	45.5	44.	36.8	
28	31.	31.	31.4	40.5	48.	48.8	55.4	55.1	49.	47.	42.1	36.	
29	33.	30.	35.4	41.2	42.	58.	61.5	54.8	50.2	46.1	42.2	39.5	
30	35.8	-	34.	45.	46.	53.	53.3	58.5	50.	46.8	42.	38.	
31	33.	-	39.3	-	44.8	-	54.6	54.	-	47.5	-	30.2	
Mean	35.7	32.8	32.9	40.8	44.8	50.6	53.7	55.7	52.1	49.6	44.2	38.4	44.3

Portland Lightship

Surface temperatures for 1956 were, on the whole, warmer than the means for the period 1925-1941, but cooler than the means for 1947-1956. (Bumpus, 1957).

Minimum temperatures occurred during the latter two-thirds of January with temperatures of slightly less than 37°F and during the last third of March at less than 36°F. By mid-April, a thermocline had begun to develop which reached a maximum in mid-August with surface temperatures in the high 50's and bottom temperatures in the low 40's. During the first third of September, the bottom temperatures suddenly increased 7 or 8°F and remained high, ca. 48°F, until mid-November when temperatures at the surface had dropped to such a level that complete turnover was taking place in the water column. Throughout the remainder of the year, temperatures between the surface and bottom were within a degree of each other, the surface being slightly cooler.

The year commenced with surface and bottom salinity at approximately 33°/00. The salinity gradually declined toward the end of March to ca.32°/00. Beginning in April, the surface salinity lowered abruptly, reaching a minimum of 29°/00 during the first third of May. Surface salinity tended to remain less than 31°/00 until August, followed by a gradual increase to 32.5°/00 at year end.

Bottom salinities tended to remain at about 32°/00 between April and August but descended to less than 31°/00 during the first third of May and again during the last half of July whereupon bottom salinities remained slightly higher than surface salinities until the last third of December.

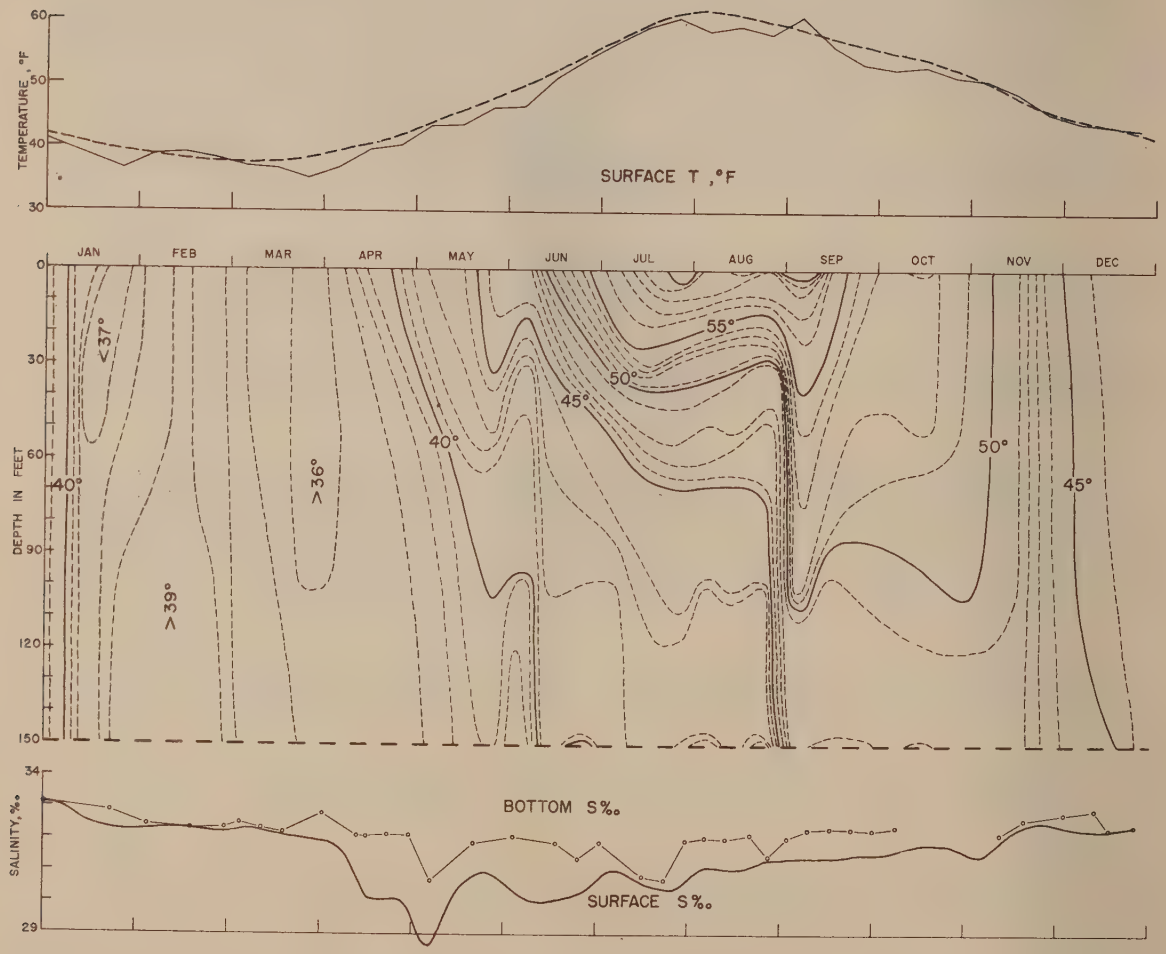

Figure 4. Portland Lightship, 1956. (Dashed line in upper diagram, mean for period 1947-1956)

Table 3

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

December 1955

Depth / Day	Temperature °F					Salinity °/oo	
	0'	30'	50'	100'	150'	0'	150'
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17	43.5	-	-	-	-	32.92	-
18	43.3	43.1	43.2	43.4	44.4	32.85	-
19	42.5	-	-	-	-	33.26	-
20	41.	-	-	-	-	.58	-
21	43.4	43.5	43.5	43.4	43.5	.39	-
22	39.	-	-	-	-	33.27	-
23	41.9	41.9	-	-	-	32.95	32.98
24	42.1	42.0	41.9	41.9	42.0	.99	-
25	41.5	-	-	-	-	.91	-
26	41.3	41.2	41.0	40.9	40.9	32.96	-
27	42.1	41.9	42.1	42.0	42.1	33.05	-
28	-	-	-	-	-	-	-
29	45.	-	-	-	-	.14	-
30	42.3	42.3	-	-	-	.25	-
31	42.0	-	-	-	-	33.16	33.09
Mean							

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

January 1956

Depth / Day	Temperature °F 0'	30'	50'	100'	150'	Salinity °/oo 0'	150'
1	38.9	39.2	39.1	-	-	32.97	-
2	40.1	40.2	40.2	40.2	40.2	33.02	-
3	40.9	40.9	40.9	40.9	-	.11	-
4	41.1	40.8	40.7	40.4	40.4	.10	-
5	40.5	-	-	-	-	.15	-
6	40.	-	-	-	-	.07	-
7	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
11	40.7	-	-	-	-	.07	-
12	38.1	-	-	-	-	33.03	-
13	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-
15	38.1	-	-	-	-	-	-
16	-	-	-	-	-	-	-
17	42.5	-	-	-	-	32.19	-
18	36.7	37.0	37.2	37.2	37.1	.58	-
19	36.5	36.5	36.4	37.5	38.0	32.08	-
20	36.2	36.7	36.9	37.3	38.0	31.92	-
21	36.4	36.8	37.7	38.3	39.0	.82	-
22	37.2	36.9	37.2	38.6	39.4	.77	32.89
23	35.0	38.5	38.9	39.6	39.4	31.62	-
24	36.8	36.8	36.9	39.9	40.0	32.34	-
25	35.9	36.1	39.1	39.4	39.9	.26	-
26	37.9	38.1	38.1	39.4	40.4	.56	-
27	35.6	-	-	-	-	.58	-
28	35.5	-	-	-	-	.68	-
29	-	-	-	-	-	-	-
30	37.5	-	-	-	-	.49	-
31	38.5	-	-	-	-	.69	-
Mean	38.1	38.0	38.4	39.1	39.3	32.56	32.89

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

February 1956

	Temperature °F					Salinity °/oo	
Depth / Day	0'	30'	50'	100'	150'	0'	150'
1	39.1	39.1	39.0	39.0	39.3	32.26	-
2	-	-	-	-	-	-	-
3	39.0	39.0	39.0	39.4	39.8	.37	-
4	38.8	38.8	38.8	39.0	39.2	.35	32.46
5	38.5	38.7	39.0	39.5	-	.27	-
6	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-
8	38.1	38.1	38.1	38.8	39.1	.24	-
9	39.0	38.8	38.5	38.8	39.2	.26	-
10	39.0	38.8	38.5	38.9	39.8	.41	-
11	39.9	39.9	40.3	40.5	40.6	.70	-
12	-	-	-	-	-	-	-
13	39.8	39.9	40.2	40.5	40.5	.50	-
14	39.5	39.8	39.9	40.0	39.7	.15	-
15	38.1	38.8	38.9	38.9	39.0	.17	-
16	38.4	38.8	39.0	39.1	39.1	.47	-
17	38.7	39.0	39.1	40.0	-	.44	-
18	39.1	39.1	39.2	39.5	39.8	.11	32.34
19	39.6	39.6	39.5	39.5	39.5	.17	-
20	38.5	38.8	39.0	39.0	39.2	.40	-
21	38.5	38.7	39.0	39.8	40.0	.14	-
22	38.4	38.5	38.6	39.1	39.5	.19	-
23	38.2	38.2	38.2	39.3	39.7	.13	-
24	37.9	37.9	37.9	38.9	39.9	-	-
25	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-
29	37.9	37.9	37.9	38.0	39.3	32.37	32.39
30							
31							
Mean	38.8	38.9	38.9	39.4	39.6	32.30	32.40

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

March 1956

Day	Temperature °F					Salinity °/oo	
Depth	0'	30'	50'	100'	150'	0'	150'
1	37.5	37.5	37.7	38.0	38.1	32.37	-
2	37.8	37.6	37.5	37.5	37.6	.36	-
3	37.1	37.1	37.1	37.7	38.0	.29	-
4	37.0	37.1	37.2	37.8	-	.26	32.53
5	36.6	37.0	37.0	37.6	37.6	.27	-
6	36.8	36.8	36.8	37.2	37.8	.25	-
7	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-
10	36.4	36.2	36.3	37.7	-	.25	-
11	36.8	36.8	36.9	37.4	38.1	.11	32.37
12	37.1	37.1	37.2	37.7	38.5	.17	-
13	36.5	36.6	36.5	36.8	37.8	.17	-
14	36.7	36.7	36.8	36.9	37.9	.18	-
15	36.2	36.2	36.4	37.0	37.8	.05	-
16	36.5	36.7	36.7	36.7	36.8	-	-
17	-	-	-	-	-	-	-
18	36.6	36.6	36.6	36.6	36.6	.25	32.24
19	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
21	35.6	35.6	35.7	35.8	35.9	.22	-
22	35.7	35.7	35.8	35.8	35.8	.14	-
23	36.7	36.3	36.1	36.0	36.0	.80	-
24	35.4	35.4	35.4	35.5	35.8	32.15	-
25	-	-	-	-	-	-	-
26	34.7	34.2	34.9	35.2	35.9	31.74	-
27	34.8	34.5	34.9	35.8	36.1	.73	-
28	34.5	34.4	34.4	35.2	36.3	.86	-
29	35.0	34.8	34.8	35.2	36.4	.84	-
30	34.9	34.9	34.9	35.9	36.3	.85	-
31	35.0	35.0	35.5	36.3	36.4	31.79	-
Mean	36.2	36.1	36.2	36.6	37.0	32.13	32.38

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

April 1956

Depth / Day	Temperature °F					Salinity °/oo	
	0'	30'	50'	100'	150'	0'	150'
1	35.2	35.0	35.0	36.1	36.6	31.87	32.84
2	35.9	35.3	35.1	36.2	-	32.23	-
3	36.0	35.8	35.4	36.4	36.7	31.81	-
4	36.4	36.0	35.8	35.6	36.6	.70	-
5	36.8	36.4	35.6	36.3	36.6	.58	-
6	38.1	37.0	36.3	36.4	36.9	31.68	-
7	37.0	36.9	36.2	36.3	36.8	32.48	-
8	-	-	-	-	-	-	-
9	36.0	35.9	35.9	35.7	35.5	31.79	-
10	38.9	38.1	38.0	37.9	37.9	31.10	-
11	38.0	36.1	35.9	36.0	36.0	29.50	-
12	38.1	36.3	35.9	35.9	35.9	29.64	32.15
13	39.1	36.9	36.1	36.0	36.0	30.66	-
14	38.2	36.8	36.3	36.3	36.1	.65	-
15	40.1	37.1	36.6	36.1	36.0	.64	32.10
16	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-
18	40.3	39.7	37.7	36.6	36.4	.28	-
19	41.1	38.3	37.4	36.9	36.5	30.18	-
20	41.9	37.9	36.9	36.8	36.7	29.11	-
21	42.1	40.7	37.3	36.9	36.9	27.43	-
22	41.1	37.1	37.1	36.7	36.7	29.34	32.19
23	38.7	38.3	36.9	36.8	36.8	30.65	-
24	39.1	38.5	37.2	37.1	37.1	.63	-
25	39.7	38.7	37.1	36.9	36.9	.23	-
26	39.8	39.3	37.2	37.1	37.1	.33	-
27	39.8	37.3	36.8	36.9	37.0	.53	-
28	-	-	-	-	-	-	-
29	41.	-	-	-	-	30.64	32.16
30	40.1	39.3	38.7	37.2	37.1	31.23	-
31							
Mean	38.8	37.3	36.6	36.5	36.6	30.69	32.29

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

May 1956

Depth / Day	Temperature °F					Salinity °/oo	
	0'	30'	50'	100'	150'	0'	150'
1	41.5	38.0	37.8	36.8	36.8	29.89	-
2	42.2	41.1	38.8	37.1	-	28.03	-
3	43.3	43.6	38.4	37.7	37.2	28.86	-
4	45.6	40.8	38.0	37.2	37.0	29.19	-
5	43.3	42.4	39.7	37.2	37.0	25.18	-
6	44.	-	-	-	-	28.62	30.70
7	43.8	41.4	39.7	37.8	-	28.15	-
8	43.2	42.8	39.6	38.2	38.0	29.69	-
9	44.2	43.4	39.6	38.8	-	30.19	-
10	-	-	-	-	-	-	-
11	41.2	40.7	40.4	39.1	38.1	31.17	-
12	-	-	-	-	-	-	-
13	43.2	41.7	40.0	38.1	38.0	29.77	-
14	43.6	43.5	41.2	38.8	-	30.36	-
15	43.5	41.6	39.8	38.5	-	30.54	-
16	44.	42.3	40.3	39.8	39.7	29.96	-
17	44.1	43.8	42.6	38.6	-	30.49	-
18	44.	43.9	43.6	40.0	-	.75	-
19	44.0	44.0	43.1	38.9	38.3	.60	-
20	45.0	44.7	44.4	40.2	-	-	31.91
21	46.4	45.1	42.6	40.0	39.1	-	-
22	46.5	45.0	43.0	40.2	39.0	.61	-
23	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-
25	45.4	45.1	40.7	39.7	38.1	.88	-
26	46.0	45.2	44.7	41.1	39.6	.73	-
27	-	-	-	-	-	-	-
28	45.8	45.4	45.2	41.9	40.5	30.87	-
29	47.7	46.2	44.7	40.3	39.6	31.82	-
30	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-
Mean	44.2	43.1	41.2	39.0	38.4	29.83	31.30

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

June 1956

	Temperature °F					Salinity °/oo	
Depth / Day	0'	30'	50'	100'	150'	0'	150'
1	45.6	42.5	40.4	37.1	37.0	30.27	-
2	45.	-	-	-	-	.16	-
3	45.	-	-	-	-	-	32.12
4	46.6	42.0	39.7	37.2	-	.66	-
5	47.8	41.5	40.2	39.4	37.2	-	-
6	46.8	41.3	39.7	38.7	37.5	30.44	-
7	48.0	42.1	40.7	39.9	38.8	29.52	-
8	47.5	42.7	40.9	39.3	38.9	30.22	-
9	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
11	44.1	42.5	42.5	41.4	-	31.06	-
12	46.9	41.9	42.2	41.5	-	30.41	-
13	52.2	43.4	42.0	41.5	-	28.60	-
14	46.5	44.2	43.0	42.1	-	29.91	-
15	56.8	44.2	42.9	42.0	40.1	29.90	-
16	50.2	47.6	45.5	44.5	-	30.61	-
17	55.3	47.1	45.7	43.9	43.0	28.40	31.90
18	51.6	47.0	45.1	-	-	30.23	-
19	54.	-	-	-	-	31.08	-
20	52.9	52.1	44.1	42.4	42.1	30.18	-
21	51.0	50.0	45.6	-	-	30.48	-
22	53.	-	-	-	-	30.37	-
23	53.4	49.6	43.8	41.4	39.2	30.21	-
24	53.8	45.5	44.7	41.6	39.9	30.53	31.44
25	54.0	49.5	44.2	42.7	-	.52	-
26	55.5	50.9	44.0	41.7	-	30.52	-
27	55.4	46.7	44.1	41.9	40.1	29.66	-
28	54.7	50.3	45.4	41.8	-	29.78	-
29	54.5	-	-	-	-	30.70	-
30	54.2	44.4	42.1	41.5	-	30.66	-
Mean	50.8	45.6	43.0	41.1	39.4	30.19	31.82

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

July 1956

Depth / Day	Temperature °F					Salinity °/oo	
	0'	30'	50'	100'	150'	0'	150'
1	58.2	49.7	44.7	42.4	41.7	30.74	31.92
2	53.9	52.3	45.3	42.7	41.5	.98	-
3	56.0	45.6	43.8	42.1	-	-	-
4	55.2	50.6	43.0	39.5	-	31.14	-
5	57.9	53.0	46.6	42.0	41.0	.32	-
6	59.0	56.0	47.1	42.7	-	.13	-
7	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
11	57.1	51.2	48.7	44.0	42.4	31.03	-
12	58.0	52.8	47.9	44.6	42.5	30.82	-
13	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-
15	57.6	56.8	49.6	44.2	42.8	30.79	30.85
16	59.7	57.4	47.0	43.8	-	.87	-
17	57.8	56.9	46.9	43.7	-	.85	-
18	60.5	56.8	51.0	43.8	-	.77	-
19	60.0	51.7	48.0	41.7	-	30.91	-
20	61.8	53.6	48.3	44.9	-	29.00	-
21	64.6	51.2	47.0	44.8	42.0	31.98	-
22	-	-	-	-	-	-	30.74
23	58.0	48.1	46.9	44.3	-	29.67	-
24	56.0	50.5	47.6	45.0	-	29.28	-
25	60.	51.2	49.1	-	-	31.10	-
26	59.	-	-	-	-	30.77	-
27	60.	-	-	-	-	.76	-
28	63.3	57.7	50.0	45.1	-	.35	-
29	62.	-	-	-	-	.33	31.99
30	61.	-	-	-	-	.07	-
31	62.	-	-	-	-	30.25	-
Mean	59.1	52.8	47.3	43.4	(42.0)	30.65	31.38

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

August 1956

	Temperature °F					Salinity °/oo	
Depth / Day	0'	30'	50'	100'	150'	0'	150'
1	61.8	55.3	52.6	45.2	-	30.72	-
2	61.0	54.5	47.8	42.0	40.0	30.82	-
3	57.0	49.3	45.5	41.3	40.0	31.07	-
4	55.2	48.6	45.9	42.3	41.0	.15	-
5	57.	-	-	-	-	.78	32.06
6	59.	-	-	-	-	31.23	-
7	57.8	49.0	46.7	43.0	-	30.25	-
8	-	-	-	-	-	-	-
9	57.9	50.2	47.0	42.9	-	31.43	-
10	60.0	51.7	49.5	44.3	-	.82	-
11	56.5	48.9	47.0	43.8	-	.10	-
12	59.0	50.2	47.9	44.0	-	31.42	32.05
13	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-
16	58.5	53.0	48.0	43.3	42.1	30.96	-
17	61.2	55.0	51.2	46.8	-	.85	-
18	62.0	52.4	49.3	45.0	-	30.59	-
19	-	-	-	-	-	-	-
20	58.5	51.0	48.3	43.6	-	31.44	32.20
21	63.	-	-	-	-	.35	-
22	56.0	48.0	47.7	41.8	-	.48	-
23	54.5	48.7	46.8	42.3	-	.35	-
24	-	-	-	-	-	-	-
25	54.9	47.8	45.0	43.0	40.2	.03	-
26	60.	-	-	-	-	.56	31.46
27	57.	-	-	-	-	.57	-
28	56.5	-	-	-	-	.39	-
29	60.	-	-	-	-	31.22	-
30	60.	-	-	-	-	-	-
31	-	-	-	-	-	-	-
Mean	58.5	50.8	47.9	43.4	40.7	31.20	31.94

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

September 1956

Depth / Day	Temperature °F					Salinity °/oo	
	0'	30'	50'	100'	150'	0'	150'
1	61.7	60.7	59.7	50.0	48.0	31.64	-
2	62.8	60.5	57.3	49.1	48.7	.65	32.08
3	62.2	60.1	58.3	49.8	47.8	.55	-
4	64.0	61.0	58.9	51.7	49.0	.18	-
5	60.9	57.2	54.5	50.7	48.5	.67	-
6	62.0	58.0	56.8	53.3	50.0	.19	-
7	62.0	58.8	56.1	51.2	48.9	.17	-
8	59.8	58.4	54.5	50.9	48.6	.67	-
9	57.5	57.2	55.0	50.9	48.0	.37	32.33
10	56.5	55.1	53.8	49.1	47.0	.46	-
11	55.4	53.2	51.6	46.1	-	.16	-
12	59.7	55.3	53.5	51.1	48.6	.48	-
13	57.0	54.9	53.2	50.6	-	.31	-
14	56.7	56.3	50.8	47.1	46.2	.45	-
15	55.8	55.5	53.2	47.9	46.9	.59	-
16	53.1	52.8	50.3	46.4	44.3	.58	32.35
17	56.5	-	-	-	-	.59	-
18	56.0	56.0	55.7	50.2	49.0	.63	-
19	55.8	54.8	52.6	49.5	48.7	.56	-
20	54.0	53.9	52.7	49.5	48.5	.39	-
21	52.9	52.9	51.7	48.1	47.3	.61	-
22	53.1	52.3	49.0	47.9	46.9	.74	-
23	53.3	52.9	51.0	48.6	47.2	.66	32.35
24	54.7	54.6	53.3	50.4	49.2	.68	-
25	55.0	54.2	53.8	49.7	47.9	.80	-
26	54.4	54.0	53.6	50.4	48.9	.82	-
27	51.8	51.8	51.7	49.7	47.0	.58	-
28	51.9	51.6	51.5	49.0	47.5	.42	-
29	52.2	51.8	51.7	49.2	47.5	.41	-
30	53.5	52.2	52.0	50.2	49.1	31.21	32.33
Mean	56.7	55.4	53.7	49.6	48.0	31.51	32.29

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

October 1956

	Temperature °F					Salinity °/oo	
Depth / Day	0'	30'	50'	100'	150'	0'	150'
1	54.9	53.9	53.2	51.3	50.0	31.08	-
2	54.9	52.7	52.2	51.5	-	.35	-
3	54.2	54.1	53.8	51.3	48.9	.46	-
4	52.8	52.5	50.9	49.1	47.4	.55	-
5	53.2	53.0	52.9	51.1	47.9	.82	-
6	53.0	52.2	52.5	50.5	-	.86	-
7	53.6	53.1	52.8	50.4	-	.69	32.42
8	47.9	47.8	47.2	44.1	-	.69	-
9	53.9	53.8	53.1	49.3	47.9	.64	-
10	48.1	47.6	47.1	43.8	-	31.85	-
11	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-
13	53.0	52.9	52.8	49.1	48.2	31.94	-
14	52.0	52.0	51.7	48.7	46.7	.78	-
15	55.2	54.0	53.1	51.5	50.0	.66	-
16	53.3	53.0	52.4	49.0	47.5	.95	-
17	53.	-	-	-	-	.89	-
18	53.4	52.2	51.1	48.3	48.0	31.64	-
19	-	-	-	-	-	-	-
20	52.2	52.1	51.9	49.0	47.2	32.00	-
21	52.0	51.8	51.8	48.9	47.4	31.98	-
22	52.3	52.0	51.4	48.8	47.1	.88	-
23	-	-	-	-	-	-	-
24	52.9	52.8	52.3	50.3	48.6	.95	-
25	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-
27	50.7	50.8	50.8	50.9	50.4	.79	-
28	51.0	51.0	51.0	51.0	50.0	31.92	-
29	50.7	50.5	49.9	50.2	49.6	32.46	-
30	51.8	51.3	51.3	51.5	50.0	31.92	-
31	50.8	50.8	50.1	50.0	47.7	-	-
Mean	52.4	52.0	51.6	49.6	48.4	31.74	(32.42)

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

November 1956

Depth / Day	Temperature °F					Salinity °/oo	
	0'	30'	50'	100'	150'	0'	150'
1	51.1	50.8	50.7	50.1	48.5	31.63	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	50.7	50.4	50.3	50.2	48.7	-	-
5	50.6	50.2	50.0	49.7	48.2	31.97	-
6	50.5	50.2	50.0	49.7	47.7	30.10	-
7	50.4	50.2	50.0	49.4	48.5	31.68	-
8	50.9	50.8	50.7	50.0	-	31.59	-
9	51.3	51.2	50.9	49.9	49.0	32.00	-
10	-	-	-	-	-	-	-
11	49.0	49.0	49.3	49.4	47.6	.11	32.19
12	-	-	-	-	-	-	-
13	50.1	50.0	49.8	50.0	49.0	.28	-
14	48.4	48.3	48.3	49.0	-	.16	-
15	49.6	49.6	49.2	49.2	48.7	.51	-
16	49.2	49.1	49.0	48.6	47.8	.18	-
17	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-
19	48.	-	-	-	-	.36	32.63
20	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-
24	47.1	47.1	47.1	47.4	47.3	.67	-
25	46.2	46.2	46.3	47.0	47.5	.35	-
26	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-
28	46.3	46.4	46.4	46.3	46.1	.58	-
29	44.	-	-	-	-	.84	-
30	45.4	45.4	45.5	46.4	46.6	32.50	-
31							
Mean	48.8	49.1	49.0	48.9	47.9	32.09	32.41

Table 3 (cont'd)

PORTLAND LIGHTSHIP 43°31.6'N. 70°05.5'W. Depth of water - 150 feet

December 1956

Depth / Day	Temperature °F					Salinity °/oo	
	0'	30'	50'	100'	150'	0'	150'
1	44.3	44.9	45.0	45.0	45.7	32.38	-
2	44.2	45.1	45.3	46.0	46.3	.46	32.84
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	44.0	44.2	44.3	45.0	45.5	.20	-
6	-	-	-	-	-	-	-
7	45.0	45.0	45.0	45.1	46.1	.32	-
8	44.2	44.3	44.5	44.9	44.9	-	-
9	-	-	-	-	-	-	-
10	44.4	44.4	44.3	44.3	44.8	.44	-
11	-	-	-	-	-	-	-
12	43.8	43.8	43.9	45.0	45.8	.15	32.98
13	44.0	44.0	44.0	44.9	45.9	.30	-
14	43.9	43.9	43.9	44.5	45.1	-	-
15	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-
17	43.5	43.9	43.9	44.0	44.0	.55	32.39
18	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
21	43.5	43.7	43.9	44.0	44.0	.53	-
22	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-
25	43.0	43.4	43.8	44.0	44.0	.40	32.44
26	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-
28	43.1	43.5	43.5	43.8	43.9	.48	-
29	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-
Mean	43.9	44.2	44.3	44.7	45.1	32.38	32.66

Boston Lightship

Mean surface temperatures for 1956 exhibited little departure from the means for the period 1925-1941 (Bumpus, 1957) except for the last of May and early June which were several degrees cooler and the last of July and first two-thirds of August which were several degrees warmer than the means for the period of record. The autumn temperatures cooled more slowly than the mean.

Water temperatures at this position ranged from slightly less than 37°F, surface to bottom, in March, to 68°F at the surface in August and almost 52°F at the bottom in October. The thermocline was well developed from mid-June to mid-September.

Surface salinity ranged from 32.5°/00 in January to 30.5°/00 in mid-June with recovery to nearly 32.0°/00 by the end of the year.

Bottom salinities were 1/2 to 3/4 °/00 higher than the surface salinities during the period of thermocline development, but generally tended to follow the surface salinity at each end of the year.

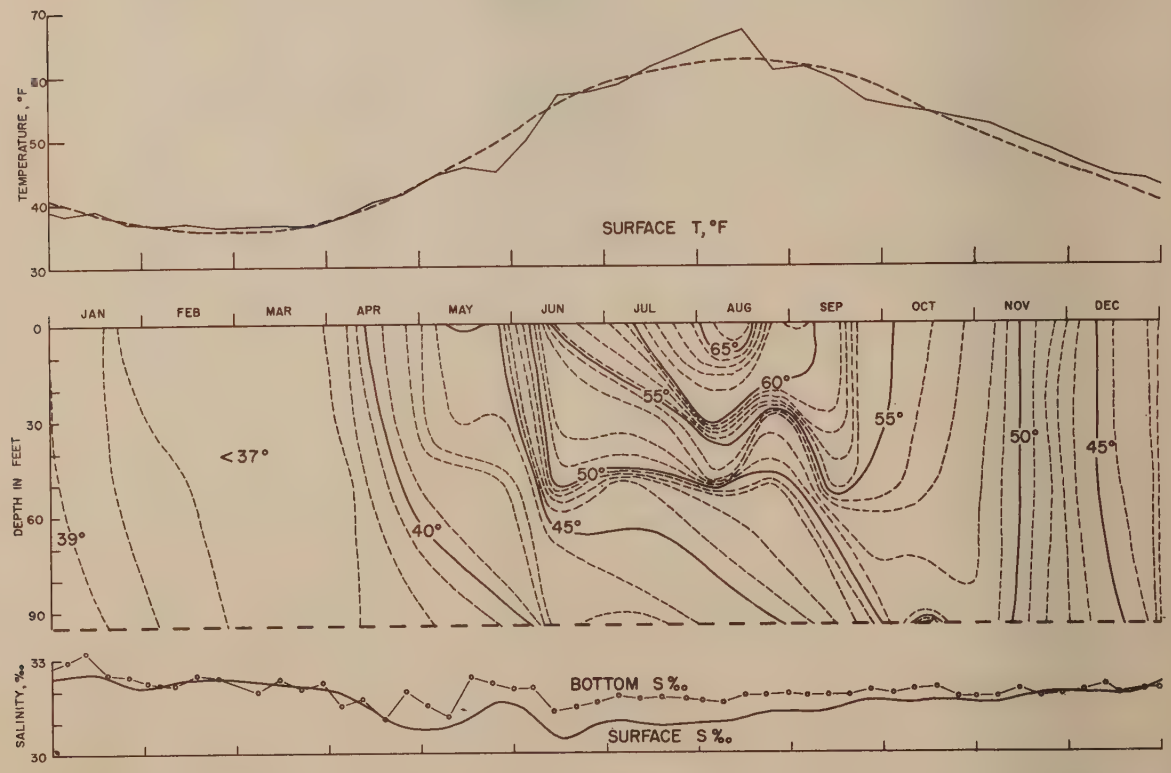

Figure 5. Boston Lightship, 1956. (Dashed line in upper diagram, mean for period 1925-1941)

Table 4

BOSTON LIGHTSHIP 42° 20.4'N. 70° 45.5'W. Depth of water - 96 feet

1955

Day	November Temperature °F 0'	30'	50'	95'	Salinity °/oo 0'	95'	December Temperature °F 0'	30'	50'	95'	Salinity °/oo 0'	95'
1							47.0	47.0	46.9	46.9	31.93	-
2							46.9	46.9	46.9	46.9	.95	-
3							46.4	46.3	46.2	46.6	27.01	-
4							45.1	45.1	45.1	45.5	31.80	-
5							45.1	45.1	45.2	45.7	.82	-
6							45.0	45.0	45.0	45.0	.86	-
7							44.2	44.1	44.1	44.1	.86	-
8							45.7	45.7	45.7	45.7	.92	-
9							44.9	45.0	45.0	45.9	.93	-
10							44.0	44.0	44.0	44.0	31.91	-
11							44.7	44.7	44.7	44.7	32.01	-
12	50.1	50.1	50.1	50.6	31.43	-	44.9	44.9	44.9	44.9	.03	-
13	50.2	50.2	50.3	51.0	.10	-	44.7	44.7	44.8	44.9	.12	-
14	50.0	50.2	50.3	50.9	.37	-	44.5	44.5	44.6	44.6	.12	-
15	50.2	50.1	50.2	50.4	.58	-	42.0	44.3	44.5	44.5	-	-
16	49.9	49.9	50.1	50.4	.52	-	43.2	43.2	43.2	43.2	32.08	-
17	48.9	49.5	49.7	49.4	.52	-	42.9	42.9	42.9	43.2	30.79	-
18	49.3	49.2	49.2	49.2	.66	-	42.4	42.4	42.3	44.0	32.02	-
19	47.5	49.0	49.2	49.2	.73	-	42.0	42.0	42.0	44.0	.00	-
20	-	-	-	-	-	-	41.4	41.4	41.4	41.4	.07	-
21	48.4	48.6	48.6	48.6	.91	-	40.1	40.1	40.1	39.9	.06	32.06
22	47.4	47.7	47.7	47.7	.89	-	39.9	40.1	40.1	40.0	.18	-
23	48.5	48.5	48.5	48.5	.88	-	39.2	39.3	39.3	39.6	.18	-
24	48.0	48.0	48.0	48.0	-	-	39.0	39.1	39.2	41.0	.21	-
25	48.4	48.5	48.5	48.6	.89	-	39.3	39.8	41.0	41.0	.24	-
26	47.4	47.9	47.9	47.9	.88	-	39.7	40.0	40.0	40.0	.36	-
27	46.9	46.9	46.9	46.9	.91	-	39.6	40.0	40.0	40.0	.46	-
28	45.4	47.8	48.0	48.0	31.36	-	40.1	40.1	40.1	40.0	.56	32.67
29	47.2	47.2	47.2	47.1	32.62	-	39.7	39.9	40.0	40.2	.47	-
30	47.0	47.0	47.0	47.0	31.89	-	39.9	40.1	40.1	39.9	.52	-
31							39.1	39.2	39.2	39.2	32.51	-
Mean	48.3	48.7	48.7	48.8	31.71	-	42.7	42.8	42.8	43.1	31.89	32.36

Table 4 (cont'd)

BOSTON LIGHTSHIP — 42° 20.4'N. 70° 45.5'W. — Depth of water - 96 feet

1956

Depth / Day	January Temperature °F 0'	30'	50'	95'	January Salinity °/oo 0'	95'	February Temperature °F 0'	30'	50'	95'	February Salinity °/oo 0'	95'
1	39.2	39.3	39.4	39.2	32.52	-	36.9	37.0	37.0	37.5	32.19	32.25
2	39.0	39.0	39.0	38.7	.51	-	36.8	37.0	37.1	37.8	.20	-
3	38.8	38.9	38.9	38.8	.47	-	36.5	36.6	36.8	39.1	.08	-
4	38.0	38.0	38.0	40.1	.45	-	37.0	36.8	36.8	39.0	.18	-
5	38.8	38.8	38.8	39.0	.51	32.94	37.0	37.0	37.1	38.4	.21	-
6	38.6	38.6	38.6	38.6	.51	-	36.6	37.0	37.0	37.5	.24	-
7	38.2	38.3	38.3	38.3	.55	-	36.0	36.5	37.1	38.0	.10	-
8	37.5	38.1	38.1	38.2	.51	-	37.0	37.0	37.0	37.8	.20	32.35
9	37.7	37.7	37.7	37.7	.31	-	36.1	36.5	36.6	37.2	.22	-
10	36.4	36.8	36.8	36.8	.41	-	36.5	37.0	37.0	37.3	.18	-
11	39.7	39.9	40.0	40.9	.72	33.22	36.8	37.0	37.0	37.3	.56	-
12	38.7	39.1	39.1	39.1	.75	-	36.9	36.5	37.0	37.1	.20	-
13	39.1	39.1	39.1	39.1	.69	-	36.7	36.6	36.6	36.6	.70	-
14	38.8	39.0	39.0	39.1	.62	-	37.0	37.0	37.0	37.1	.05	-
15	38.9	39.0	39.0	39.1	.57	-	37.0	37.0	37.0	37.1	.46	32.17
16	38.8	38.9	39.0	39.1	.15	-	36.7	37.1	37.1	37.1	.54	-
17	38.9	39.0	39.1	39.2	.49	-	36.0	37.0	37.0	37.0	.37	-
18	38.7	38.8	38.8	38.8	.49	32.50	37.0	37.0	37.0	37.5	.35	-
19	38.3	38.5	38.5	38.7	.31	-	36.9	37.0	37.0	37.2	.31	-
20	37.8	38.2	38.2	38.8	.44	-	37.0	37.0	37.1	37.8	.30	-
21	37.7	38.2	38.2	38.3	.35	-	36.7	37.0	37.0	38.9	.32	-
22	37.9	37.9	38.1	38.3	.26	-	36.0	37.0	37.0	38.0	.45	32.50
23	37.2	37.6	38.0	38.9	.19	-	35.8	36.6	36.6	36.8	.42	-
24	36.7	38.0	38.1	39.0	.03	-	35.8	36.0	36.0	36.2	32.40	-
25	36.6	37.0	37.0	38.0	.01	32.48	36.0	35.9	36.5	37.1	31.96	-
26	36.3	36.7	36.8	37.9	.03	-	36.5	36.8	36.9	36.9	32.37	-
27	36.7	37.0	37.1	38.0	.09	-	36.4	36.9	36.9	37.0	.39	-
28	36.7	37.1	37.1	38.1	.12	-	36.2	36.8	37.0	37.0	.41	-
29	36.7	37.1	37.2	37.8	.21	-	36.0	36.0	36.0	36.0	.43	32.42
30	37.1	37.2	37.5	38.9	.10	-						
31	36.5	37.1	37.1	37.3	.18	-						
Mean	37.9	38.1	38.2	38.6	32.37	32.78	36.5	36.8	36.9	37.4	32.30	32.34

Table 4 (cont'd)

BOSTON LIGHTSHIP 42° 20.4'N. 70° 45.5'W. Depth of water - 96 feet

1956

	March						April					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	95'	0'	95'	0'	30'	50'	95'	0'	95'
1	36.7	36.7	36.6	-	32.41	-	36.5	36.2	36.1	36.3	31.92	-
2	35.5	35.5	35.8	36.4	.15	-	37.2	36.6	36.2	36.3	.84	-
3	36.0	36.0	36.0	37.0	.16	-	37.2	37.0	36.6	36.5	31.77	-
4	36.8	36.8	36.8	37.4	.21	-	37.7	37.0	36.7	36.3	32.16	31.51
5	37.0	36.7	37.0	37.0	.38	-	37.3	37.4	36.9	36.3	31.80	-
6	36.5	37.0	37.0	37.0	32.28	-	42.0	37.8	36.9	36.3	.72	-
7	36.8	37.0	37.0	37.1	31.96	31.99	38.1	38.1	37.9	36.4	.85	-
8	36.2	36.2	36.1	36.1	32.44	-	36.8	37.1	37.1	36.9	.91	-
9	36.7	36.9	37.0	36.9	.36	-	37.4	37.7	37.8	37.8	.79	-
10	36.8	36.7	36.9	36.9	.31	-	39.1	37.1	37.0	37.1	.76	-
11	37.0	37.0	37.2	37.2	.36	-	39.4	37.9	37.9	37.1	.72	31.74
12	37.0	37.1	37.1	37.2	.21	-	38.7	38.5	38.3	37.2	.78	-
13	36.6	36.8	37.0	37.0	.23	-	39.3	38.3	37.9	37.1	.48	-
14	36.5	36.8	37.0	37.0	.00	32.37	39.3	38.3	38.2	37.9	31.35	-
15	37.0	37.0	36.9	37.0	.38	-	40.1	38.3	38.1	37.5	30.91	-
16	37.2	37.2	37.1	37.3	.38	-	39.9	39.8	39.0	-	31.26	-
17	36.7	36.8	36.9	37.0	.28	-	40.9	40.1	40.0	37.1	.12	-
18	36.1	36.6	36.6	36.7	.11	-	40.4	39.1	38.8	37.1	.27	31.10
19	36.2	37.0	36.9	37.0	32.10	-	41.7	39.4	38.9	37.0	.28	-
20	36.0	36.0	36.0	35.8	31.87	-	41.8	40.3	40.2	37.1	.28	-
21	36.4	36.2	36.0	36.8	.90	32.07	40.9	40.1	39.6	37.1	.30	-
22	36.8	36.8	37.0	37.0	31.98	-	41.2	41.0	37.2	36.9	31.24	-
23	36.5	36.4	36.3	36.3	32.18	-	40.6	40.7	40.7	-	30.85	-
24	36.0	36.5	36.8	36.8	.27	-	40.7	40.9	40.8	37.1	31.34	-
25	36.0	36.5	36.5	36.5	.12	-	41.3	40.8	39.9	37.1	30.24	31.99
26	36.2	36.2	36.2	36.3	.24	-	41.2	41.1	40.9	37.1	.81	-
27	36.7	36.7	36.7	36.9	.22	-	41.3	41.0	39.7	37.1	.67	-
28	36.7	36.8	36.8	36.8	.07	32.24	41.7	41.3	41.3	37.1	.95	-
29	37.2	37.0	37.0	37.0	.08	-	42.4	41.9	40.2	37.1	.53	-
30	36.0	36.0	36.1	36.2	32.03	-	42.5	42.5	41.5	37.1	30.57	-
31	36.0	36.0	36.0	36.1	31.90	-						
Mean	36.5	36.6	36.7	36.8	32.18	32.17	39.8	39.1	38.6	37.0	31.35	31.60

Table 4 (cont'd)

BOSTON LIGHTSHIP 42° 20.4'N. 70° 45.5'W. Depth of water - 96 feet

1956

Day	May Temperature °F 0'	30'	50'	95'	May Salinity °/oo 0'	95'	June Temperature °F 0'	30'	50'	95'	June Salinity °/oo 0'	95'
1	44.0	43.0	41.7	37.6	30.69	-	48.2	44.4	41.8	39.0	31.71	-
2	44.3	43.3	42.8	38.2	.75	31.53	48.7	47.1	43.1	39.0	.59	-
3	44.4	43.5	39.6	38.0	.75	-	49.0	46.2	40.5	38.9	.57	-
4	44.9	43.7	40.2	38.0	.81	-	50.6	46.9	39.8	39.0	.41	-
5	44.1	43.9	41.2	38.1	.79	-	49.5	47.1	41.8	38.8	.05	-
6	43.2	43.5	42.0	37.7	.85	-	50.2	46.4	40.9	38.1	.01	32.10
7	43.4	43.1	40.8	38.0	.74	-	51.1	45.5	42.6	38.2	.03	-
8	44.0	43.8	43.5	38.1	.87	-	50.8	49.3	43.3	39.0	.24	-
9	44.0	43.8	41.0	38.1	.91	31.19	50.2	50.1	47.9	40.2	31.08	-
10	44.0	43.9	39.9	38.1	.71	-	51.0	50.7	49.0	44.4	30.64	-
11	45.3	44.0	40.0	38.0	.68	-	51.7	50.4	49.7	43.4	.62	-
12	45.6	44.0	40.6	38.0	.75	-	52.7	50.8	49.7	44.0	.55	-
13	46.5	44.3	39.8	38.1	.80	-	56.1	51.1	50.5	45.0	.31	31.33
14	45.6	45.5	42.2	38.7	30.83	-	56.3	51.3	50.6	-	.44	-
15	45.7	45.2	40.3	38.5	31.07	-	58.8	52.9	51.5	45.5	.37	-
16	46.0	45.3	42.7	38.6	.13	32.42	63.6	55.7	52.7	41.5	.50	-
17	45.2	44.9	44.8	38.8	.08	-	60.5	52.8	50.2	43.0	.23	-
18	44.5	44.1	41.5	38.0	.15	-	56.1	55.9	53.8	46.0	.43	-
19	45.0	44.5	39.5	38.0	.82	-	56.5	-	-	-	.48	-
20	46.1	45.9	40.4	38.1	.22	-	57.0	54.3	48.9	43.0	.63	31.48
21	45.8	44.0	41.7	38.0	.27	-	56.4	55.6	48.5	44.3	.62	-
22	46.0	44.4	39.0	38.1	.33	-	56.1	54.1	48.2	43.3	.64	-
23	43.2	42.8	41.9	38.1	.66	32.22	54.9	50.1	47.3	42.8	30.62	-
24	45.2	43.8	40.8	38.9	.55	-	56.6	52.5	50.2	41.5	31.16	-
25	45.6	43.6	42.7	38.9	.74	-	57.3	56.1	50.6	41.2	30.72	-
26	44.0	43.6	42.7	38.5	.67	-	59.3	53.1	47.4	40.8	.69	-
27	44.9	44.5	42.7	38.5	.63	-	57.4	51.9	48.2	40.2	.82	31.63
28	43.5	41.7	40.2	39.0	.78	-	58.9	53.1	46.9	40.5	.88	-
29	45.0	43.4	42.1	38.5	.76	-	56.8	50.8	45.3	40.8	.97	-
30	44.1	44.1	43.7	-	.76	32.06	58.2	48.3	43.3	41.0	30.94	-
31	46.6	43.2	41.3	-	31.73	-						
Mean	44.8	43.9	41.4	38.2	31.17	31.88	54.7	50.8	47.0	41.5	30.83	31.64

Table 4 (cont'd)

BOSTON LIGHTSHIP 42° 20.4'N. 70° 45.5'W. Depth of water - 96 feet

1956

Depth / Day	July Temperature °F 0'	30'	50'	95'	July Salinity °/oo 0'	95'	August Temperature °F 0'	30'	50'	95'	August Salinity °/oo 0'	95'
1	60.3	48.0	44.3	41.2	30.93	-	64.6	57.6	49.3	43.8	30.79	31.66
2	56.7	50.0	43.2	41.4	-	-	65.1	63.9	54.2	43.9	.75	-
3	59.0	54.2	43.9	41.8	.99	-	65.7	56.7	48.1	44.2	.81	-
4	60.5	51.5	46.0	41.5	.98	31.84	65.8	60.6	50.3	43.9	.89	-
5	60.8	54.9	46.2	41.9	.97	-	65.8	57.1	49.9	43.8	.92	-
6	57.1	55.8	47.6	42.1	.96	-	65.4	53.9	50.6	44.0	.91	-
7	56.6	53.9	48.3	42.8	.98	-	64.0	-	-	-	.98	-
8	59.1	57.2	49.4	42.2	30.97	-	64.1	63.3	57.1	46.2	30.97	31.60
9	56.7	48.4	43.2	42.4	31.02	-	66.9	65.2	64.7	46.1	31.05	-
10	58.6	46.9	43.7	42.2	-	-	66.9	66.1	58.8	43.8	31.05	-
11	60.9	49.2	43.2	42.8	30.91	31.72	67.3	63.8	49.0	44.4	30.97	-
12	60.9	50.0	45.6	42.4	.85	-	68.0	60.2	52.2	44.2	.98	-
13	62.9	57.5	48.4	42.9	.87	-	67.1	61.0	52.0	44.5	30.99	-
14	60.6	54.5	47.1	42.6	.91	-	67.7	56.1	49.9	45.1	31.03	-
15	61.5	53.9	49.2	42.7	.89	-	67.5	57.1	49.2	44.8	.03	31.84
16	61.1	50.3	45.0	41.8	.87	-	66.9	52.2	46.4	44.8	.05	-
17	60.5	51.3	45.7	42.0	-	-	64.9	52.2	48.6	44.2	.10	-
18	60.7	52.9	45.1	41.9	.89	31.78	64.1	57.8	49.4	44.2	.16	-
19	61.3	55.0	46.6	41.9	-	-	68.2	53.9	49.3	43.9	.08	-
20	61.8	54.5	44.9	42.1	-	-	68.1	55.2	47.9	44.5	.10	-
21	62.1	55.6	46.0	42.4	.95	-	66.3	53.8	50.6	44.8	.05	-
22	59.3	47.9	45.0	42.9	.97	-	62.3	59.5	47.7	44.4	.12	31.84
23	59.8	53.9	47.3	42.8	.97	-	63.0	-	-	-	.22	-
24	61.4	52.2	45.8	43.1	.92	-	61.2	51.1	46.2	44.3	.20	-
25	62.3	53.3	46.2	42.9	.93	-	61.4	52.3	47.2	44.0	.22	-
26	64.9	54.0	46.7	43.1	30.95	31.71	60.0	-	-	-	.29	-
27	63.3	52.5	46.9	43.7	31.01	-	60.5	-	-	-	.36	-
28	65.7	60.2	50.5	43.5	30.93	-	57.7	47.6	46.4	44.3	.34	-
29	64.7	56.0	46.3	43.5	.29	-	59.0	50.4	48.6	44.8	.40	31.88
30	65.1	54.7	49.0	43.9	-	-	58.1	49.9	46.7	45.1	.48	-
31	65.5	63.0	49.3	43.9	30.74	-	58.4	53.1	45.8	45.2	.26	-
Mean	61.0	53.3	46.3	42.5	30.91	31.76	64.2	56.7	50.2	44.5	31.08	31.76

Table 4 (cont'd)

BOSTON LIGHTSHIP 42°20.4'N. 70°45.5'W. Depth of water - 96 feet

1956

Depth / Day	September Temperature °F 0'	30'	50'	95'	Salinity °/oo 0'	95'	October Temperature °F 0'	30'	50'	95'	Salinity °/oo 0'	95'
1	61.4	59.6	49.8	-	31.32	-	55.1	55.0	54.5	54.0	31.67	-
2	62.0	55.0	51.7	46.0	.32	-	55.4	54.7	54.6	53.5	.55	-
3	61.0	55.0	49.6	46.3	.21	-	54.8	54.8	54.5	53.2	.70	31.89
4	64.0	56.3	47.0	45.5	.32	-	54.9	54.6	54.2	51.8	.61	-
5	61.2	59.7	47.3	46.0	.27	31.80	54.9	54.9	54.8	51.8	.56	-
6	62.5	58.8	49.7	45.5	31.30	-	54.7	54.5	54.4	54.4	.61	-
7	61.2	61.0	48.4	46.1	30.90	-	54.9	54.7	54.5	51.0	.46	-
8	60.0	59.7	55.5	46.0	31.20	-	54.6	54.5	54.3	51.0	.57	-
9	59.0	59.0	58.4	-	.35	-	55.0	54.5	54.5	48.0	.54	-
10	59.1	58.5	58.5	-	.38	-	54.5	54.3	54.3	48.5	.64	32.00
11	59.0	58.3	58.2	48.7	.35	-	54.0	53.9	53.9	47.4	.69	-
12	59.2	58.4	58.2	47.5	.37	31.82	53.5	53.2	53.2	48.5	.74	-
13	59.5	58.3	57.2	47.7	.33	-	54.0	53.0	53.0	48.2	.74	-
14	59.6	59.3	57.8	47.0	.33	-	53.5	53.0	53.0	47.3	.72	-
15	60.0	-	-	-	.31	-	53.9	53.5	53.1	47.2	.72	-
16	59.5	59.5	57.5	46.5	.46	-	54.4	54.1	53.1	47.2	.63	
17	59.6	59.5	58.8	46.6	.46	-	56.1	55.5	54.0	46.8	.56	32.06
18	59.2	58.5	55.3	46.1	.46	-	56.1	55.1	53.9	47.3	.53	-
19	58.8	57.8	57.4	46.6	.46	31.82	53.1	53.1	53.0	48.2	.66	-
20	58.0	57.9	50.6	46.1	.44	-	53.6	52.7	52.7	49.0	.75	-
21	57.0	56.8	54.0	46.2	.67	-	54.0	53.0	53.0	49.7	.74	-
22	57.0	56.4	56.2	45.8	.77	-	53.5	53.1	52.5	50.0	.73	-
23	57.0	56.8	52.9	46.0	.68	-	53.4	53.1	53.1	49.4	.57	-
24	56.6	56.2	50.2	45.1	.56	-	53.8	53.8	53.5	50.8	.58	31.76
25	56.6	56.4	55.7	-	.63	-	52.9	52.9	52.8	52.7	.62	-
26	55.6	55.4	55.0	46.8	.56	31.98	52.4	52.3	52.3	52.3	.67	-
27	54.5	54.3	53.9	47.8	.51	-	53.0	52.8	52.5	52.5	.60	-
28	54.2	54.2	54.2	-	.58	-	52.9	52.8	52.8	52.5	.59	-
29	54.5	54.4	54.0	53.9	.66	-	53.0	52.3	52.3	52.2	.66	-
30	55.6	54.9	54.8	54.5	31.73	-	52.4	52.4	52.4	52.0	.44	-
31							53.3	52.3	52.3	51.9	.39	31.78
Mean	58.7	57.4	54.1	47.1	31.43	31.86	54.1	53.7	53.5	50.3	21.62	31.90

Table 4 (cont'd)

BOSTON LIGHTSHIP 42°20.4'N. 70°45.5'W. Depth of water - 96 feet

1956

Depth / Day	November Temperature °F 0'	30'	50'	95'	November Salinity °/oo 0'	95'	December Temperature °F 0'	30'	50'	95'	December Salinity °/oo 0'	95'
1	53.3	52.3	52.2	52.0	31.28	-	47.1	47.1	47.1	47.1	31.97	-
2	52.8	52.8	52.8	52.2	.52	-	46.9	46.9	46.9	47.1	.96	-
3	52.2	52.2	52.2	52.2	.67	-	47.0	47.0	47.0	46.9	.99	-
4	52.2	52.1	52.0	52.0	.61	-	46.7	46.6	46.5	46.6	.99	-
5	51.9	51.9	51.9	51.8	.73	-	46.0	45.9	45.9	45.9	.92	31.94
6	52.5	51.9	51.8	51.9	.63	-	45.3	45.6	45.9	46.8	.80	-
7	52.1	51.9	51.9	51.8	.36	31.79	45.0	45.0	45.0	47.1	.71	-
8	52.4	51.9	51.8	51.4	.30	-	44.8	44.7	44.9	-	.70	-
9	52.0	51.9	51.9	51.1	.59	-	45.1	45.1	45.1	46.2	.77	-
10	51.1	51.0	50.9	50.9	.74	-	45.1	45.1	45.2	45.8	.91	-
11	50.4	50.3	50.3	50.1	.74	-	44.4	44.5	45.0	46.0	.78	-
12	50.8	50.7	50.7	49.2	.71	-	43.8	43.8	43.9	45.7	.62	32.13
13	50.2	50.2	50.2	48.9	.88	-	43.9	43.9	43.8	45.8	.63	-
14	49.9	49.9	49.9	49.8	.92	32.01	44.0	44.0	44.0	45.7	.79	-
15	50.3	49.7	49.9	49.9	.77	-	44.8	44.6	44.7	44.8	31.87	-
16	50.1	50.1	50.1	49.5	.80	-	46.2	46.1	46.2	46.7	.76	31.83
17	50.0	50.0	50.0	48.3	.77	-	46.2	46.7	46.7	42.4	.80	-
18	49.0	49.8	49.8	49.4	.74	-	43.9	43.8	44.1	45.5	.82	-
19	49.7	49.6	49.5	49.3	.74	-	41.0	41.0	41.0	41.8	.86	-
20	49.2	49.2	49.2	49.5	.73	-	41.4	41.6	41.8	42.3	.88	-
21	49.7	49.7	49.7	49.8	.76	31.78	46.5	46.9	47.2	47.1	.91	-
22	49.7	49.7	49.7	48.1	.83	-	42.3	42.3	42.3	-	.95	-
23	48.9	48.9	48.9	48.0	.93	-	-	-	-	-	-	-
24	48.7	48.7	48.7	48.7	.94	-	43.0	43.0	43.0	43.0	.70	-
25	48.6	48.5	48.4	48.0	.95	-	41.4	41.4	41.5	-	.94	-
26	48.0	47.0	46.9	46.9	.83	-	40.1	40.1	40.2	40.9	31.92	-
27	46.5	46.7	46.7	47.2	.73	-	44.8	45.4	45.6	45.9	32.02	-
28	46.5	46.5	46.6	46.8	.82	31.82	44.5	45.0	46.2	46.6	31.58	-
29	47.3	46.2	47.2	47.4	.92	-	44.5	-	-	-	.96	-
30	47.5	47.5	47.5	47.5	31.99	-	42.2	42.2	42.2	42.2	31.93	31.95
31							45.4	45.5	45.5	45.7	32.08	-
Mean	50.1	50.0	50.0	49.6	31.73	31.85	44.4	44.5	44.6	45.5	31.85	31.96

Georges Shoal, Texas Tower #2

Surface water temperature readings commenced on Georges Shoal on 21 April 1956, well after the winter minimum, and surface and bottom salinities are available for short periods from time to time.

Surface temperatures reached slightly over 60°F in mid-September. Values for other depths are not given herein inasmuch as all bathythermograms indicated an isothermal condition.

Surface salinities ranged between 32.3 and 33.0°/00. The occasional bottom salinity samples collected yielded salinity values within several hundredths of a °/00 or the surface salinity, so it is reasonable to assume the water at this location was completely mixed from top to bottom (56').

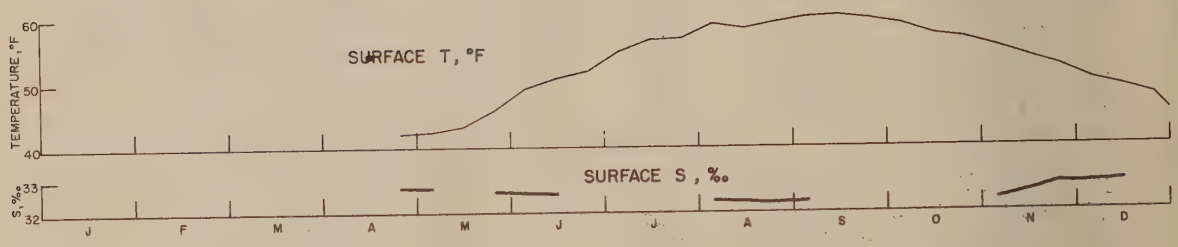

Figure 6. Georges Shoal, 1956.

Table 5

TEXAS TOWER #2 41°41'16.3"N. 67°45'36.2"W. Depth of water - 56 feet
GEORGES SHOAL

Surface Temperature °F

1956

Month / Day	April		May		June		July		August	
	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal	Temp	Sal
1	-	-	42.3	32.83	48.1	32.60	53.4	-	59.6	-
2	-	-	42.5	.78	48.1	.66	54.0	-	59.0	32.37
3	-	-	42.3	.76	48.7	.65	54.5	-	58.4	.37
4	-	-	42.4	.80	49.0	.64	55.9	-	59.5	.38
5	-	-	42.2	.80	49.6	.58	55.9	-	59.7	.37
6	-	-	42.4	.76	49.0	.66	55.8	-	59.6	.36
7	-	-	42.5	.78	49.7	.62	55.6	-	59.0	.34
8	-	-	42.4	.79	49.5	.56	55.3	-	58.6	.32
9	-	-	42.9	.77	49.7	.56	54.1	-	58.9	.32
10	-	-	43.4	32.77	49.2	.56	53.8	-	58.1	.34
11	-	-	43.2	-	49.0	.70	55.4	-	56.2	.36
12	-	-	42.6	-	48.9	.56	55.2	-	56.4	.37
13	-	-	43.6	-	50.4	32.56	55.9	-	57.0	.35
14	-	-	42.3	-	51.1	-	56.1	-	59.7	.36
15	-	-	42.4	-	50.4	-	56.3	-	58.9	.37
16	-	-	42.7	-	51.6	-	56.5	-	58.3	.34
17	-	-	43.9	-	52.6	-	57.8	-	58.5	.32
18	-	-	43.2	-	52.5	-	58.0	-	59.2	.31
19	-	-	43.8	-	50.4	-	56.6	-	59.5	.32
20	-	-	44.3	-	50.2	-	56.8	-	59.7	.32
21	42.	-	44.4	-	50.0	-	56.8	-	58.4	.30
22	42.5	-	44.8	-	50.1	-	56.5	-	58.5	.30
23	42.5	-	44.8	-	50.8	-	56.2	-	59.1	.31
24	42.8	-	45.4	-	51.2	-	56.2	-	59.5	.31
25	42.	32.81	45.5	-	51.0	-	56.2	-	60.0	.27
26	41.3	.76	45.3	-	52.1	-	56.4	-	59.4	.26
27	42.	.78	46.7	-	52.1	-	56.1	-	59.1	.26
28	42.	.78	47.2	-	52.5	-	55.8	-	59.1	.28
29	42.	.77	45.8	32.61	53.6	-	57.0	-	59.6	.29
30	42.2	.73	46.4	.70	53.6	-	58.5	-	59.2	.29
31	-	-	47.7	32.64	-	-	59.2	-	59.2	32.33
Mean	-	-	43.9	-	50.5	-	56.1	-	58.9	32.33

Water Temperatures means of four observations per day, courtesy 12th Wea. Sqdn., USAF.
Water samples collected by U. S. N., Hydrographic Office, one per day.

Table 5 (cont'd)

TEXAS TOWER #2 41°41'16.3"N. 67°45'36.2"W. Depth of water - 56 feet
GEORGES SHOAL

Surface Temperature °F

1956

Month / Day	Sept. Temp	Sept. Sal	Oct. Temp	Oct. Sal	Nov. Temp	Nov. Sal	Dec. Temp	Dec. Sal
1	59.3	32.30	59.8	-	56.8	32.30	51.1	32.94
2	60.2	.30	59.6	-	55.8	.28	50.3	.83
3	60.4	.29	59.4	-	55.1	.30	50.9	.82
4	60.3	.30	59.1	-	55.2	-	51.5	.84
5	60.7	32.38	58.8	-	55.1	.47	48.8	.84
6	60.1	-	57.8	-	54.9	.31	49.5	.84
7	60.6	-	58.7	-	55.5	.35	50.4	.82
8	60.1	-	58.5	-	55.7	.37	50.3	.85
9	59.1	-	58.8	-	55.1	.44	49.2	.85
10	58.7	-	58.2	-	54.0	.46	48.7	.81
11	59.4	-	56.1	-	53.4	.54	48.0	.84
12	59.8	-	56.0	-	54.2	.52	49.4	.88
13	60.2	-	57.1	-	53.6	.66	50.0	32.91
14	60.7	-	57.6	-	53.4	.53	49.3	33.02
15	60.2	-	58.2	-	54.4	.49	49.2	32.90
16	60.0	-	58.3	-	54.8	.61	49.2	32.84
17	60.7	-	58.2	-	54.8	.66	49.4	-
18	60.5	-	58.2	-	54.5	.64	49.6	-
19	59.8	-	57.2	-	51.8	.57	48.0	-
20	60.6	-	56.4	-	52.2	.76	47.6	-
21	60.7	-	57.6	-	53.5	.84	47.4	-
22	60.6	-	58.3	-	54.2	.73	47.9	-
23	59.7	-	58.0	-	53.3	.73	47.3	-
24	59.9	-	57.4	-	51.8	.79	48.2	-
25	60.1	-	55.6	-	50.9	.78	49.1	-
26	59.4	-	55.5	-	51.4	.78	47.9	-
27	58.4	-	56.2	-	52.1	32.95	47.4	-
28	58.7	-	56.4	-	51.8	33.04	47.2	-
29	59.0	-	56.0	-	52.0	32.94	47.6	-
30	59.6	-	56.4	-	51.8	32.94	-	-
31	-	-	56.8	-	-	-	46.1	-
Mean	59.9	-	57.6	-	53.8	32.61	48.9	-

Nantucket Shoal Lightship

Note: Nantucket Lightship moved at the first of the year from 40°37'00"N, 69°18'30"W, a position she had occupied for nearly three years, to 40°33'00"N, 69°28'00"W.

Minimum surface temperatures of 38°F were recorded in early March and maximum temperatures of 70°F were recorded in mid-September.

The whole water column was virtually isothermal during the first five months of the year. The thermocline commenced development in early June and reached its peak in mid-September. Maximum bottom temperatures occurred during the first third of November.

Surface salinity ranged between 32°/00 and 34.5°/00, the minimum occurring in mid-summer and the maximum in mid-September. Bottom salinities were close to the surface salinities for the first two-thirds of the year but were slightly higher during the autumn.

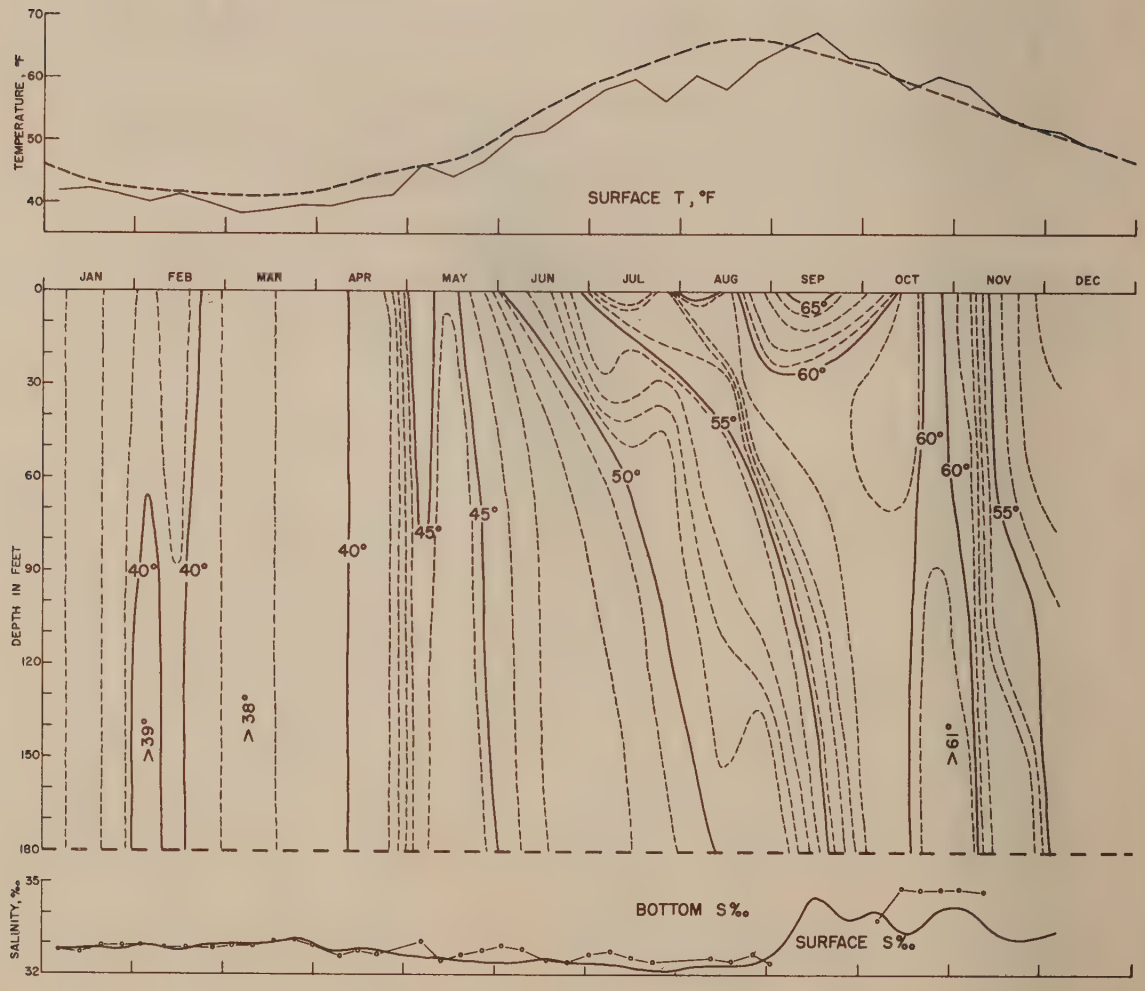

Figure 7. Nantucket Lightship, 1956. (Dashed line in upper diagram, mean for period 1947-1952, 8 miles WSW of present position)

Table 6

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water-192 feet

January 1956

Day	Temperature °F						Salinity °/oo	
Depth	0'	30'	50'	100'	150'	180'	0'	180'
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	41.7	41.9	41.9	41.9	41.9	41.9	32.79	-
4	41.3	41.3	41.3	41.2	41.2	41.2	.79	-
5	-	-	-	-	-	-	-	-
6	41.9	41.9	41.9	41.9	41.9	41.9	.83	32.80
7	42.1	42.1	42.0	42.0	42.0	42.0	.81	-
8	41.8	41.9	41.9	41.9	41.9	41.9	.80	-
9	-	-	-	-	-	-	-	-
10	42.3	42.3	42.3	42.4	42.4	42.4	.76	-
11	42.0	42.1	42.1	42.1	42.0	42.0	.69	-
12	42.1	42.1	42.1	42.2	42.3	42.3	.65	-
13	41.9	41.9	42.0	42.2	42.2	42.2	.63	32.71
14	42.4	42.8	42.8	42.9	42.9	42.8	.83	-
15	42.7	42.8	42.8	42.8	42.7	42.8	.86	-
16	42.5	42.7	42.7	42.7	42.7	42.7	.85	-
17	42.8	42.8	42.9	42.8	42.9	42.9	.95	-
18	42.0	42.1	42.3	42.4	42.5	42.5	.97	-
19	42.0	42.2	42.2	42.2	42.2	42.2	.95	-
20	42.0	42.1	42.1	42.1	42.1	42.1	.94	32.93
21	42.1	42.2	42.2	42.2	42.2	42.2	.94	-
22	41.5	42.0	42.0	42.1	42.2	42.1	.93	-
23	41.9	41.9	41.9	42.0	41.9	42.0	.92	-
24	41.0	41.4	41.5	41.7	41.7	41.7	.94	-
25	41.5	41.5	41.5	41.5	41.5	41.5	.95	-
26	41.3	41.3	41.3	41.3	41.3	41.3	.94	-
27	40.8	40.8	40.8	41.1	41.2	41.2	.96	32.94
28	40.4	40.4	41.4	41.2	41.0	41.0	.36	-
29	40.3	40.3	40.4	41.2	41.2	41.1	.37	-
30	40.8	40.9	41.2	41.5	41.5	41.5	.61	-
31	-	-	-	-	-	-	-	-
Mean	41.7	41.8	41.9	42.0	42.0	42.0	32.81	32.84

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water-192 feet

February 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	180'	0'	180'
1	39.8	40.2	40.1	40.1	40.2	40.0	32.94	-
2	40.4	40.4	40.3	38.9	38.8	38.8	.94	-
3	40.7	40.6	40.7	40.7	40.7	40.7	.96	32.93
4	39.4	39.7	39.7	39.7	39.5	39.6	.96	-
5	39.4	39.4	39.5	39.7	39.7	39.7	.98	-
6	39.5	39.3	39.5	39.8	40.0	40.0	.96	-
7	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-
9	40.2	40.1	40.1	40.0	39.9	39.9	.92	-
10	40.3	40.2	40.2	40.1	40.1	40.1	.97	-
11	41.8	41.7	41.7	40.8	40.4	39.3	.67	32.90
12	41.5	41.5	41.4	41.3	40.7	40.6	.64	-
13	41.6	41.6	41.4	40.9	40.8	40.8	.68	-
14	41.3	41.3	41.3	41.2	41.0	40.9	.74	-
15	41.5	41.5	41.4	41.2	40.9	40.9	.64	-
16	41.1	41.1	41.1	41.1	41.1	40.7	.80	-
17	40.7	40.7	40.8	40.6	40.5	40.5	.84	-
18	40.7	40.8	40.8	40.8	40.7	40.7	.81	32.86
19	40.5	40.9	40.8	40.4	40.2	40.2	.86	-
20	40.8	40.8	40.8	40.8	40.8	40.8	.86	-
21	40.8	40.7	40.7	40.7	40.7	40.7	.87	-
22	40.3	40.3	40.4	40.4	40.4	40.4	.87	-
23	39.5	39.7	39.7	39.6	39.6	39.6	.99	-
24	39.0	39.3	39.4	39.4	39.4	39.4	.99	-
25	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-
27	40.2	40.2	40.1	39.9	39.8	39.8	.82	32.82
28	-	-	-	-	-	-	-	-
29	38.8	39.0	39.0	39.0	38.9	38.9	32.97	-
30								
31								
Mean	40.4	40.4	40.4	40.3	40.2	40.1	32.86	32.87

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

March 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	180'	0'	180'
1	38.6	38.5	38.5	38.5	38.5	38.5	32.97	-
2	38.3	38.3	38.3	38.3	38.2	38.2	.99	-
3	38.3	38.3	38.3	38.3	38.5	38.3	.89	32.93
4	38.0	38.0	38.2	38.3	38.3	38.2	.98	-
5	38.0	37.7	38.0	38.0	38.0	38.0	32.87	-
6	38.0	37.7	38.0	38.2	38.2	38.2	33.04	-
7	38.7	38.4	38.4	38.5	38.3	38.4	32.89	-
8	38.8	37.9	38.5	38.4	38.4	38.4	.90	-
9	-	-	-	-	-	-	-	-
10	38.3	37.7	37.8	38.3	38.5	38.6	.90	32.94
11	38.0	38.2	38.1	38.0	38.0	38.0	.86	-
12	38.3	38.3	38.3	38.3	38.4	38.4	.87	-
13	38.4	38.4	38.5	38.5	38.5	38.5	.87	-
14	-	-	-	-	-	-	-	
15	38.7	38.7	38.7	38.7	38.6	38.6	32.88	-
16	38.7	38.8	38.8	38.8	38.8	38.9	33.02	-
17	39.7	39.7	39.7	39.6	39.6	39.6	.11	33.09
18	39.6	39.6	39.6	39.5	39.6	39.4	.14	-
19	-	-	-	-	-	-	-	-
20	39.4	39.4	39.4	39.4	39.4	39.4	.07	-
21	39.6	39.7	39.7	39.6	39.5	39.5	.15	-
22	39.4	39.2	39.2	39.1	39.1	39.0	.16	-
23	39.7	39.7	39.7	39.7	39.7	39.6	.16	-
24	39.7	39.7	39.7	39.6	39.5	39.5	.05	33.11
25	39.2	39.8	39.8	39.8	39.6	39.5	.16	-
26	39.7	39.7	39.7	39.7	39.7	39.7	.13	-
27	39.8	39.8	39.8	39.8	39.7	39.8	.10	-
28	39.5	39.5	39.5	39.5	39.5	39.5	.14	-
29	39.5	39.3	39.3	39.2	39.2	39.2	.09	-
30	39.3	39.5	39.4	39.3	39.2	39.2	.33	-
31	39.0	39.3	39.2	39.2	39.1	39.1	.23	32.95
Mean	38.9	38.9	38.9	38.9	38.9	38.9	33.03	33.00

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

April 1956

Day	Temperature °F 0'	30'	50'	100'	150'	180'	Salinity °/oo 0'	180'
1	39.4	39.3	39.3	39.2	39.2	39.2	32.86	-
2	39.5	38.9	38.9	39.1	39.1	39.1	.73	-
3	39.0	38.9	38.9	38.9	39.0	39.1	.86	-
4	39.0	38.8	38.7	38.7	38.8	38.9	.78	-
5	39.0	39.1	39.1	39.1	-	-	.61	-
6	39.4	39.0	39.0	39.1	39.2	39.3	.69	-
7	40.0	40.0	40.1	39.9	39.6	-	.78	-
8	-	-	-	-	-	-	-	-
9	39.0	39.0	39.0	39.1	39.1	39.1	.63	32.62
10	40.2	40.2	40.1	40.0	40.1	40.1	.76	-
11	40.1	39.9	39.9	39.9	39.9	39.9	.74	-
12	40.0	40.0	40.1	40.1	40.0	40.0	.88	-
13	40.9	40.6	40.5	40.4	40.4	40.4	32.81	-
14	41.1	40.5	40.3	40.3	40.3	40.3	33.02	-
15	40.4	40.4	40.3	40.2	40.2	40.2	32.79	32.77
16	40.4	40.4	40.3	40.3	40.3	40.3	.85	-
17	39.9	39.7	39.5	39.5	39.5	39.8	.71	-
18	41.0	40.2	40.2	40.3	40.5	40.5	.88	-
19	41.5	40.5	40.4	40.4	40.4	40.4	.66	-
20	40.8	40.6	40.5	40.5	40.5	40.5	.84	-
21	40.5	40.5	40.5	40.5	40.7	40.6	.67	32.65
22	40.7	40.7	40.7	40.5	40.5	40.5	.70	-
23	-	-	-	-	-	-	-	-
24	40.9	40.7	40.7	40.7	40.8	40.9	.65	-
25	41.5	41.1	41.0	40.9	41.0	41.0	.65	-
26	40.9	41.0	41.0	41.0	41.0	41.0	.72	-
27	41.3	41.1	40.9	41.0	41.0	41.0	.77	-
28	41.3	40.9	40.9	41.1	41.0	41.1	.58	-
29	41.8	41.5	41.5	41.5	41.3	41.4	.58	-
30	41.7	41.8	41.8	41.5	41.5	41.4	32.89	-
31								
Mean	40.4	40.2	40.1	40.1	40.2	40.2	32.75	32.68

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

May 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	180'	0'	180'
1	46.0	45.2	45.0	45.0	45.0	45.0	32.58	-
2	46.6	45.2	45.1	45.0	45.1	45.1	.51	-
3	45.7	45.9	45.9	45.3	45.1	-	.56	-
4	46.0	45.5	45.3	45.2	45.2	45.2	.48	-
5	47.0	45.7	45.6	45.8	45.4	45.3	.48	-
6	47.0	46.0	45.8	45.6	45.3	45.2	.82	33.07
7	46.4	46.1	46.1	45.1	45.1	45.0	.60	-
8	-	-	-	-	-	-	-	-
9	43.3	42.7	42.4	42.3	42.2	42.2	.48	-
10	-	-	-	-	-	-	-	-
11	43.9	43.2	43.0	42.8	42.8	-	.55	-
12	43.0	43.0	42.9	42.8	42.8	42.8	.48	32.47
13	43.5	43.1	43.0	43.0	43.0	43.0	.51	-
14	44.0	43.5	43.2	43.1	43.1	43.1	.48	-
15	44.0	43.3	43.2	43.1	43.2	43.1	.48	-
16	43.5	42.7	42.8	43.0	43.0	43.0	.47	-
17	44.	-	-	-	-	-	.53	-
18	44.	-	-	-	-	-	.52	-
19	46.	-	-	-	-	-	.53	32.65
20	45.	-	-	-	-	-	.52	-
21	46.5	-	-	-	-	-	.54	-
22	47.5	-	-	-	-	-	.57	-
23	47.5	-	-	-	-	-	.49	-
24	45.	-	-	-	-	-	.52	-
25	47.5	-	-	-	-	-	.59	-
26	47.5	-	-	-	-	-	.42	32.77
27	46.5	-	-	-	-	-	.38	-
28	45.	-	-	-	-	-	.40	-
29	45.	-	-	-	-	-	.36	-
30	46.5	-	-	-	-	-	.46	-
31	46.5	-	-	-	-	-	32.38	-
Mean	45.5	-	-	-	-	-	32.51	32.74

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

June 1956

	Temperature °F						Salinity °/oo	
Depth / Day	0'	30'	50'	100'	150'	180'	0'	180'
1	46.5	-	-	-	-	-	32.85	-
2	48.	-	-	-	-	-	.39	32.93
3	48.	-	-	-	-	-	.44	-
4	50.	-	-	-	-	-	.20	-
5	51.5	-	-	-	-	-	.25	-
6	52.	-	-	-	-	-	.16	-
7	53.	-	-	-	-	-	.15	-
8	55.	-	-	-	-	-	.17	-
9	50.	-	-	-	-	-	.42	32.84
10	52.	-	-	-	-	-	.44	-
11	52.	-	-	-	-	-	.38	-
12	50.	-	-	-	-	-	.75	-
13	50.	-	-	-	-	-	.48	-
14	50.	-	-	-	-	-	.69	-
15	51.	-	-	-	-	-	.39	-
16	-	-	-	-	-	-	-	-
17	52.0	47.4	47.1	46.9	46.8	46.8	.30	32.47
18	52.3	48.2	47.3	47.1	46.9	46.8	.53	-
19	52.8	48.8	47.3	47.2	47.1	47.1	.61	-
20	52.7	48.4	47.2	47.0	47.0	47.0	.54	-
21	54.	48.9	47.2	47.2	47.3	47.3	.56	-
22	55.9	42.9	49.6	46.2	46.2	46.2	.54	-
23	56.6	53.3	49.7	47.2	47.3	47.2	.47	-
24	53.8	48.9	47.9	47.8	47.7	47.6	.19	32.41
25	54.0	48.7	48.3	47.8	47.7	47.7	.33	-
26	51.2	48.9	48.5	48.2	47.9	47.8	.26	-
27	51.0	49.4	49.0	48.4	48.1	48.0	.26	-
28	55.9	50.9	49.4	48.7	48.4	48.0	.30	-
29	57.8	50.7	48.9	48.1	48.0	48.0	.33	-
30	57.3	51.0	49.1	48.5	47.9	48.1	32.33	-
Mean	52.3	-	-	-	-	-	32.41	32.66

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

July 1956

Day	Temperature °F						Salinity °/oo	
Depth	0'	30'	50'	100'	150'	180'	0'	180'
1	55.7	49.0	48.7	48.4	47.4	47.0	32.29	32.66
2	59.5	51.3	48.9	47.6	47.1	47.0	.29	-
3	61.0	56.8	48.9	48.6	47.1	47.1	.22	-
4	-	-	-	-	-	-	-	-
5	56.4	54.1	49.5	48.0	47.9	47.9	.45	-
6	59.0	54.2	49.5	49.0	47.9	46.7	.31	-
7	57.0	56.0	50.0	48.0	47.5	47.3	.52	-
8	57.0	50.0	48.7	48.8	48.6	48.5	.50	32.77
9	58.8	58.2	51.0	48.1	48.1	48.1	.44	-
10	58.8	55.4	47.7	47.0	47.1	47.1	.43	-
11	-	-	-	-	-	-	.42	-
12	62.0	52.7	50.1	49.0	47.7	47.5	.22	-
13	54.0	50.6	49.8	48.5	48.2	48.2	.30	-
14	58.5	51.2	50.3	49.1	48.3	48.3	-	-
15	60.0	53.9	50.8	49.0	48.1	48.1	.29	32.54
16	60.6	54.0	51.1	48.3	47.5	47.3	.26	-
17	64.1	61.0	55.0	48.4	47.5	47.5	.08	-
18	64.0	52.2	50.6	49.1	48.5	48.2	.16	-
19	-	-	-	-	-	-	-	-
20	53.8	50.8	50.2	49.2	49.0	48.9	.23	-
21	-	-	-	-	-	-	-	-
22	57.8	55.0	51.0	49.1	49.1	48.6	.48	32.44
23	54.0	50.9	50.6	49.9	49.1	49.0	.20	-
24	52.7	51.9	50.2	49.8	49.2	49.2	.14	-
25	55.0	51.0	50.5	50.0	49.1	48.3	32.16	-
26	62.7	51.8	51.0	50.4	50.0	50.0	31.19	-
27	53.5	51.1	51.0	50.0	49.2	49.0	32.21	-
28	58.8	51.4	50.9	50.5	49.1	48.9	.18	-
29	58.8	55.7	51.3	50.4	48.0	47.7	.20	-
30	53.3	52.0	51.3	50.6	49.0	47.8	.22	-
31	55.9	52.3	51.1	50.7	49.8	48.7	32.28	-
Mean	57.9	53.1	50.4	49.1	48.3	48.1	32.25	32.60

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

August 1956

	Temperature °F						Salinity °/oo	
Depth / Day	0'	30'	50'	100'	150'	180'	0'	180'
1	62.	53.4	42.0	51.5	50.8	50.5	32.21	-
2	57.0	52.3	51.4	50.5	49.7	49.0	.21	-
3	54.3	53.8	52.9	52.2	49.8	48.1	.21	-
4	63.6	61.5	58.0	49.3	48.8	48.6	.30	-
5	64.3	56.3	52.6	50.1	49.2	49.2	.25	-
6	63.5	55.7	53.0	50.7	49.3	49.3	.24	-
7	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-
9	59.7	58.0	57.4	51.3	51.1	50.9	.35	-
10	59.0	53.1	52.4	52.2	51.6	50.5	.38	-
11	55.7	53.3	52.3	52.1	51.3	50.6	.38	32.55
12	55.5	53.8	52.9	52.8	51.9	50.9	.38	-
13	55.3	54.0	52.9	52.0	51.1	50.8	.38	-
14	60.5	54.8	52.9	52.0	51.9	51.4	.36	-
15	59.0	54.2	53.0	52.5	52.1	52.0	32.21	-
16	55.3	52.8	53.0	52.8	52.7	51.0	31.94	-
17	58.0	54.5	52.6	52.3	51.8	50.8	32.22	-
18	61.0	57.5	53.3	52.0	49.6	49.2	.29	32.48
19	-	-	-	-	-	-	-	-
20	62.4	62.0	57.5	51.5	47.2	47.2	.36	-
21	-	-	-	-	-	-	-	-
22	61.3	61.2	61.0	49.4	49.1	48.8	.46	-
23	61.3	61.1	61.0	54.0	50.5	50.1	.42	-
24	62.4	60.9	60.5	53.1	50.8	50.4	.43	-
25	59.0	57.9	56.8	53.0	49.8	49.8	.18	32.69
26	58.0	55.5	54.3	53.3	50.0	50.0	.11	-
27	62.7	57.9	56.0	52.6	48.7	48.3	.48	-
28	63.5	59.2	58.6	53.5	50.3	49.0	.31	-
29	64.9	63.7	59.4	53.0	49.9	48.9	.38	-
30	65.4	62.8	59.9	56.9	50.0	49.3	.38	-
31	65.0	58.7	56.0	53.7	51.0	50.5	32.35	-
Mean	60.4	57.0	55.3	52.2	50.4	49.8	32.30	32.57

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

September 1956

	Temperature °F						Salinity °/oo	
Depth / Day	0'	30'	50'	100'	150'	180'	0'	180'
1	65.5	56.8	55.7	54.1	52.0	51.1	32.41	32.40
2	59.5	54.9	54.2	53.7	52.8	52.4	.25	-
3	61.5	55.2	54.3	53.2	52.1	51.1	32.18	-
4	68.	-	-	-	-	-	33.34	-
5	66.	-	-	-	-	-	33.05	-
6	65.5	-	-	-	-	-	32.55	-
7	65.	-	-	-	-	-	32.32	-
8	67.5	-	-	-	-	-	33.89	-
9	66.	-	-	-	-	-	38.84	-
10	65.5	-	-	-	-	-	34.02	-
11	63.	-	-	-	-	-	33.85	-
12	64.	-	-	-	-	-	33.61	-
13	65.	-	-	-	-	-	33.76	-
14	69.	-	-	-	-	-	35.10	-
15	70.	-	-	-	-	-	35.07	-
16	70.	-	-	-	-	-	35.43	-
17	69.	-	-	-	-	-	34.72	-
18	70.	-	-	-	-	-	35.18	-
19	66.	-	-	-	-	-	34.01	-
20	67.	-	-	-	-	-	34.22	-
21	63.	-	-	-	-	-	33.76	-
22	64.	-	-	-	-	-	33.65	-
23	61.	-	-	-	-	-	32.89	-
24	59.	-	-	-	-	-	32.89	-
25	60.	-	-	-	-	-	32.77	-
26	67.	-	-	-	-	-	34.62	-
27	65.	-	-	-	-	-	34.23	-
28	66.	-	-	-	-	-	34.83	-
29	63.	-	-	-	-	-	34.15	-
30	66.	-	-	-	-	-	34.51	-
31								
Mean	65.2	-	-	-	-	-	33.77	-

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

October 1956

Depth / Day	Temperature °F 0'	30'	50'	100'	150'	180'	Salinity °/oo 0'	180'
1	66.	-	-	-	-	-	34.73	-
2	65.	-	-	-	-	-	.42	-
3	64.	-	-	-	-	-	.12	-
4	64.	-	-	-	-	-	.11	-
5	64.	-	-	-	-	-	34.35	-
6	59.5	59.5	59.4	59.5	59.6	59.5	33.78	33.78
7	-	-	-	-	-	-	-	-
8	57.7	57.9	57.9	59.0	59.1	59.1	.45	-
9	59.0	59.1	59.0	59.0	59.1	59.1	.73	-
10	-	-	-	-	-	-	-	-
11	59.9	60.1	60.2	61.9	62.9	62.9	.16	-
12	57.1	57.0	57.2	60.1	62.1	62.1	.37	-
13	-	-	-	-	-	-	-	-
14	57.2	57.1	57.4	58.0	58.8	58.7	.37	34.83
15	59.1	59.1	59.2	59.5	59.3	59.5	.33	-
16	58.8	58.7	58.6	59.2	59.1	59.2	.70	-
17	58.9	58.9	59.2	60.1	60.1	60.0	.76	-
18	58.1	58.1	59.1	59.7	59.3	59.2	.35	-
19	55.2	55.3	55.3	55.9	56.0	56.1	.16	-
20	58.4	58.4	58.4	58.7	58.8	58.7	.13	34.77
21	-	-	-	-	-	-	-	-
22	62.1	62.1	62.1	62.1	62.2	62.2	.05	-
23	57.6	57.7	57.9	60.1	59.6	59.6	33.88	-
24	62.0	62.0	62.1	62.1	62.1	62.1	34.01	-
25	-	-	-	-	-	-	-	-
26	58.1	58.6	58.6	58.9	58.9	58.8	.12	-
27	62.9	62.9	62.9	63.1	63.4	63.7	.08	34.77
28	59.3	60.1	60.2	62.1	62.9	63.0	.07	-
29	58.9	59.9	60.1	62.1	62.9	63.1	.10	-
30	60.4	60.9	61.2	61.8	62.0	62.0	.14	-
31	60.9	61.3	61.7	61.9	61.9	62.0	34.75	-
Mean	60.2	59.3	59.4	60.2	60.5	60.5	33.82	34.54

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

November 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	180'	0'	180'
1	57.9	58.2	59.9	61.7	61.9	61.8	34.07	-
2	58.0	58.9	60.3	61.3	61.5	61.6	33.81	-
3	59.0	59.1	59.1	59.1	59.2	59.2	34.32	34.81
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	59.9	60.1	60.7	61.9	62.6	62.7	35.07	-
7	61.9	61.9	61.9	61.9	61.9	61.9	33.87	-
8	59.2	59.1	59.4	61.9	63.9	63.9	34.59	-
9	55.1	55.2	55.5	56.7	63.1	63.2	33.38	-
10	-	-	-	-	-	-	-	-
11	55.0	55.0	55.1	56.8	63.0	63.1	.36	34.71
12	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-
14	53.1	53.1	53.1	54.8	57.7	59.0	.12	-
15	52.8	53.6	54.1	54.6	55.0	56.3	.98	-
16	54.0	54.0	54.2	56.0	56.3	56.3	.14	-
17	53.9	53.9	53.9	54.2	54.7	56.2	.03	-
18	-	-	-	-	-	-	-	-
19	55.4	55.5	55.6	56.0	56.6	57.0	.51	-
20	54.7	55.8	57.0	57.3	57.7	58.0	.44	-
21	55.9	56.6	56.9	57.6	57.7	57.9	33.48	-
22	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-
24	51.7	51.7	51.7	52.4	58.9	59.0	32.98	-
25	51.7	52.0	52.1	53.2	56.8	57.0	32.96	-
26	-	-	-	-	-	-	-	-
27	52.4	52.6	54.0	59.4	60.2	60.5	33.23	-
28	-	-	-	-	-	-	-	-
29	49.4	50.0	50.8	57.3	58.2	58.7	32.82	-
30	51.9	51.9	51.9	53.0	53.7	54.1	33.47	-
31								
Mean	55.1	55.4	55.9	57.4	59.1	59.4	33.58	-

Table 6 (cont'd)

NANTUCKET SHOALS LIGHTSHIP 40°33'00"N. 69°28'00"W. Depth of water - 192 feet

December 1956

Day	Temperature °F						Salinity °/oo	
Depth	0'	30'	50'	100'	150'	180'	0'	180'
1	49.2	49.2	49.2	51.9	53.6	53.6	32.94	-
2	50.6	50.8	50.8	54.4	55.8	56.1	33.20	-
3	53.7	53.7	53.7	54.0	54.6	55.2	.68	-
4	50.9	51.0	51.0	55.0	55.9	55.9	.53	-
5	53.8	54.1	54.2	54.2	54.2	54.2	.99	-
6	54.1	54.2	54.2	54.8	55.0	55.0	.76	-
7	55.	-	-	-	-	-	33.97	-
8	47.2	49.2	50.6	53.2	54.3	54.3	32.87	-
9	52.0	53.5	54.7	54.7	54.5	54.5	33.37	-
10	48.	-	-	-	-	-	32.90	-
11	48.5	48.8	48.8	48.8	48.9	49.0	33.11	-
12	54.	-	-	-	-	-	33.78	-
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Woods Hole Massachusetts

Water temperatures at Woods Hole were, on an annual basis, substantially lower than had been observed since 1941, but were comparable to the mean for the period of record. (See Bumpus, 1957) A relatively cold January was followed by a slightly retarded spring. Summer temperatures were comparable to the mean for the period of record, but the autumn temperatures cooled more slowly than the mean.

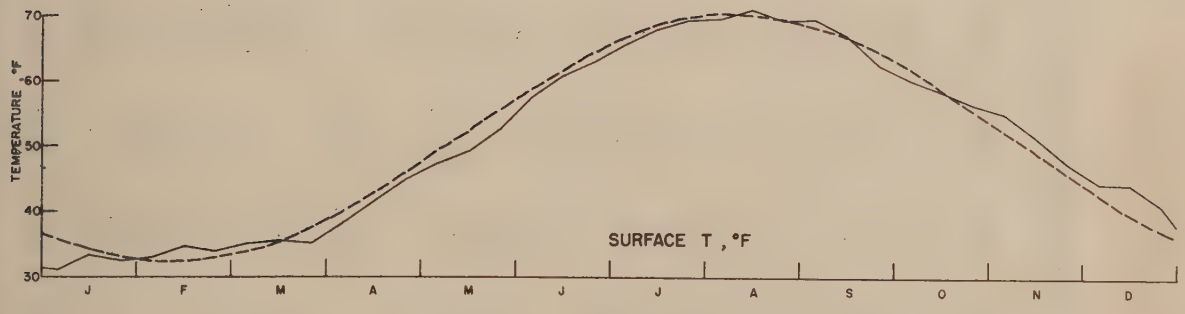

Figure 8. Woods Hole, 1956. (Dashed line, mean for period 1880-1956)

Table 7

WOODS HOLE, MASSACHUSETTS 41°31'N. 70°40'W.

Surface Temperature, °F - 1956

Month Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann
1	-	32.	34.5	-	46.	54.9	-	70.5	-	61.	57.5	-	
2	30.0	32.	34.5	37.	46.5	-	67.7	70.8	-	-	-	-	
3	30.5	32.5	-	37.5	47.	-	67.	70.6	-	61.	-	45.	
4	31.	-	-	38.	47.5	55.9	-	-	70.2	61.	-	45.5	
5	31.	-	35.5	39.5	-	58.4	65.5	-	70.2	61.5	55.2	44.	
6	30.5	33.	35.	39.5	-	56.9	64.	69.5	70.5	-	55.5	44.5	
7	-	33.5	35.5	-	47.5	61.8	-	68.5	70.	-	55.	45.	
8	-	33.5	36.	-	47.5	-	-	69.5	-	60.	55.2	-	
9	32.	33.5	35.5	38.5	48.5	-	65.5	70.	-	60.	54.7	-	
10	32.5	34.	-	39.	48.5	-	65.7	69.2	68.2	59.	-	44.	
11	33.5	-	-	39.5	49.	58.5	66.5	-	68.	58.2	-	44.2	
12	33.5	-	36.	39.7	-	59.5	67.	-	68.	-	-	45.2	
13	34.	35.	36.	41.	-	60.5	68.	70.2	69.	-	51.7	45.7	
14	-	34.5	36.	-	49.	61.5	-	70.5	69.	-	51.5	45.	
15	-	35.	36.	-	49.5	63.	-	72.5	-	59.2	52.5	-	
16	34.	34.5	36.	42.5	49.	-	68.	72.	-	60.5	53.	-	
17	-	34.5	-	43.	49.8	-	68.1	71.5	67.	-	-	45.	
18	33.	-	-	43.	49.5	61.5	69.5	-	66.5	59.	-	44.	
19	33.	-	-	-	-	61.5	68.6	-	66.	58.	50.8	43.2	
20	33.	35.	33.5	44.5	-	62.	69.5	71.	65.	58.2	51.	43.5	
21	-	34.5	34.5	-	51.	61.5	-	69.5	64.	-	51.	-	
22	-	-	35.	-	53.5	62.2	-	69.5	-	58.2	-	-	
23	33.	33.5	35.5	44.5	52.5	-	69.5	69.	-	58.2	-	-	
24	32.5	33.	-	44.5	51.	-	69.5	69.	64.	58.	-	-	
25	32.5	-	-	45.5	53.	62.5	69.6	-	63.5	56.7	-	-	
26	32.	-	34.5	44.5	-	63.	69.7	-	62.5	55.5	47.5	42.	
27	32.	34.5	35.5	45.	-	63.5	69.5	69.	61.5	-	47.5	42.	
28	-	34.5	35.5	-	53.	64.	-	70.	61.	-	47.	42.2	
29	-	34.	35.5	-	53.5	65.	-	70.	-	55.5	47.2	-	
30	32.5	-	35.5	46.	54.	-	70.	69.2	-	56.	46.2	-	
31	32.	-	-	-	-	-	69.7	70.	-	56.2	-	39.	
Mean	32.3	33.8	35.3	41.6	49.8	60.9	68.0	70.1	66.5	58.6	51.7	43.8	51.0

One reading per day at Woods Hole Oceanographic Institution Pier.

Buzzards Lightship

This is the first set of data from Buzzards Lightship. However, the reader may wish to refer to the fine record from Vineyard Sound Lightship for the period 1878-1910, at a distance of less than four miles (Bumpus, 1957).

The record of surface water temperatures commenced in March with readings in the vicinity of 35°F, rose to a maximum in late August of 68°F. The temperature decline in the autumn apparently was retarded as mentioned above, inasmuch as the November mean was comparable to the maximum Vineyard Sound Lightship. November mean and the December mean was substantially higher than any Vineyard Sound Lightship December mean for the period 1878-1910.

Surface salinity ranged from a minimum mean for March of 31.6°/00 to a monthly maximum of 32.3 in December.

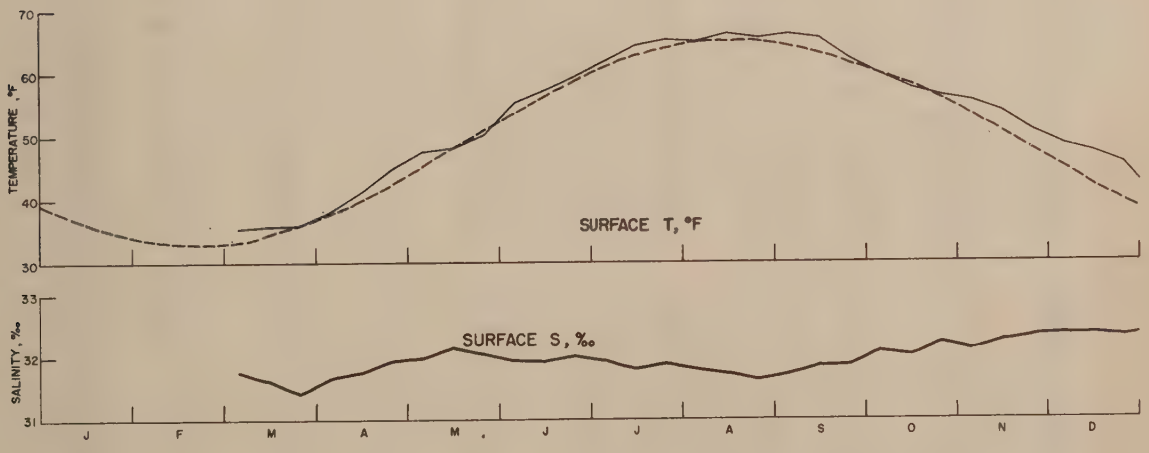

Figure 9. Buzzards Lightship, 1956. (Dashed line, mean for Vineyard Sound Lightship, 1878-1910)

Table 8

BUZZARDS LIGHTSHIP 41°24'00''N. 71°03'00''W.* Depth of water - 74 feet

Surface Water - 1956

Month / Day	March		April		May		June		July	
	T°F	Sal%	T°F	Sal%	T°F	Sal%	T°F	Sal%	T°F	Sal%
1	34.8	31.78	37.0	31.55	45	31.85	54	31.93	62.7	31.89
2	34.8	.74	37.8	.82	46	31.80	54	.82	62.9	.87
3	35.0	.79	37.1	.86	45	32.06	54	31.90	63.2	.96
4	35.4	.78	37.0	.86	54	31.89	56	32.03	61.5	.98
5	35.7	.70	39.0	.39	52	32.04	57	31.72	61.3	.98
6	35.3	.77	39.0	.21	47	31.76	56	-	61.0	.93
7	35.6	.85	38.4	.87	48	31.69	55	32.00	61.8	31.97
8	35.7	.84	38.0	.96	44	32.10	55	31.91	60.8	32.06
9	35.3	.76	38.5	.40	48	.17	55	31.94	63.1	31.80
10	35.9	.57	39.5	.54	47	.20	56	32.03	61.1	.88
11	35.7	.65	40.6	.35	47	.05	57*	32.02	62.9	.86
12	36.4	.39	39.5	.83	47	.29	56	31.92	63.4	.83
13	36.1	.78	41.2	.67	48	.20	58	.85	63.4	.84
14	36.1	.74	40.7	.87	48	32.15	55	.72	63.9	.87
15	36.2	.70	40.4	.90	49	31.98	58	.68	65.0	.76
16	36.1	.83	40.5	.99	50	32.23	61	31.69	65.5	.73
17	35.2	.54	41.0	.96	48	.32	58	32.03	65.3	.85
18	35.8	.50	42.7	.49	48	32.14	55	.05	64.8	.87
19	35.1	.50	42.9	.75	48	31.95	57	.02	64.0	.80
20	35.0	.49	43.2	.57	48	32.06	58	.10	65.5	.80
21	35.1	.27	45	.44	49	31.94	59	32.02	64.0	.80
22	35.5	.18	43	31.70	50	32.04	61	31.93	64.5	.73
23	35.8	.25	43	32.17	50	31.90	58.5	31.99	64.6	.72
24	36.1	.41	44	31.92	49	32.10	58	32.02	65	.74
25	35.7	.17	45	32.01	49	.13	57.5	32.18	66	.87
26	35.5	.36	43	31.88	50	.16	59.5	31.97	66	.68
27	36.1	.20	45	32.07	49	.20	59.5	32.02	65	.81
28	36.3	.58	45	.12	50	.12	60	31.93	66	.77
29	37.6	.80	45	32.02	50	32.01	60.1	.97	67	.74
30	35.4	.93	49	31.97	52	31.96	60.5	31.97	64	.93
31	36.7	.52	-	-	53	31.85	-	-	67	31.85
Mean	35.7	31.59	41.4	31.77	48.6	32.04	57.3	31.94	63.9	31.84

* Moved 11 Jun 500 yds. 220° from above position to 41°23'50''N. 71°03'15''W.

Table 8 (cont'd)

BUZZARDS LIGHTSHIP 41°24'00''N. 71°03'00''W.* Depth of water - 74 feet

Surface Water - 1956

Month / Day	August		September		October		November		December	
	T°F	Sal‰	T°F	Sal‰	T°F	Sal‰	T°F	Sal‰	T°F	Sal‰
1	65	31.75	67	31.79	60	31.87	55	-	48	32.03
2	65	.83	67	.58	60	32.00	55	32.18	48	32.35
3	64	-	68	.90	62	32.02	54	.11	48	31.99
4	65	.86	68	.57	60	32.08	54	.18	48	32.53
5	64	.82	65	.61	59	31.97	54	.09	48	.02
6	64	.87	65	.63	59	32.05	57	-	50	.64
7	65	.70	65	.64	59	31.99	57	.13	49	.22
8	64	.82	66	.65	59	31.97	57	.10	50	.73
9	68	.78	65	.91	60	32.02	57	32.08	49	.56
10	64	.76	66	.79	60	31.92	55	31.99	48	.56
11	66	.71	66	.86	58	31.92	54	32.09	48	.66
12	66	.76	67	.88	58	32.00	54	.10	48	.47
13	65	.92	67	.92	56	32.04	54	-	48	.32
14	66	.72	68	.76	58	31.91	54	.09	45	.27
15	66	.92	67	.67	58	31.88	54	.23	48	.47
16	67	.69	64	.74	59	31.88	55	.49	47	.40
17	67	.48	64	.73	58	31.99	54	.15	47	.41
18	67	.69	64	.88	58	32.10	54	.30	47	.25
19	67	.64	64	.92	58	32.17	53	.30	48	.10
20	66	.66	64	.91	55	32.10	52	.46	48	.27
21	64	.57	64	.88	57	32.26	54	.37	47	.20
22	64	.64	63	.95	58	32.37	53	.27	47	.24
23	64	.66	63	31.98	60	32.21	52	.19	47	.73
24	66	.58	63	32.01	58	32.03	50	.00	47	.60
25	61	.59	64	31.82	48	32.28	50	.00	47	.30
26	66	.71	63	.57	55	32.21	52	.58	46	.30
27	67	.62	61	.77	54	32.29	52	.56	45	.15
28	68	.65	62	.67	58	32.15	48	.50	45	.21
29	68	.73	59	.98	59	32.12	49	.29	45	.20
30	67	.64	60	31.95	55	32.12	48	.21	43	.19
31	67	.67	-	-	58	32.20	-	-	43	.21
Mean	65.6	31.71	64.6	31.80	57.9	32.07	53.4	32.22	47.2	32.34

* Moved 11 Jun 500 yds. 220° from above position to 41°23'50''N. 71°03'15''W.

Kingston, R. I.

Through the kindness of Dr. Steacy Hicks at the Narragansett Marine Laboratory, a temperature record was commenced at the Laboratory Pier on 6 September. This location is within sight of the Brenton Reef Lightship, a location for which we have a particularly fine record for the period 1878-1943.

The mean surface water temperatures for the last quarter 1956 ran a degree to several degrees lower than the Brenton Reef means for the period of record.

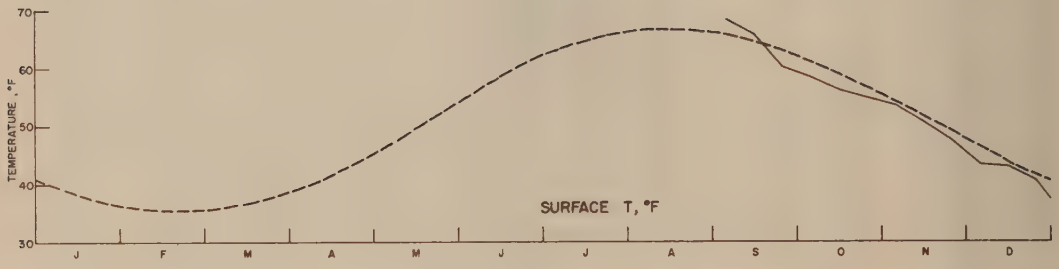

Figure 10. Kingston, R. I., 1956. (Dashed line, mean for Brenton Reef Lightship, 1878-1943)

Table 9

Kingston, R. I.* 41°29' 32"N. 71°25' 10"W.

Surface Water Temperature °C.

1956

Month / Day	September		October		November		December	
	Max.	Min.	Max.	Min	Max.	Min.	Max.	Min.
1	-	-	15.3	14.6	13.3	12.6	7.0	6.0
2	-	-	15.2	14.2	12.9	12.8	7.0	6.0
3	-	-	15.5	14.5	12.0	11.6	7.1	6.0
4	-	-	15.0	14.5	12.4	11.4	7.2	6.0
5	-	-	15.0	14.5	12.1	11.6	6.2	5.4
6	21.9	20.2	15.0	13.6	12.1	11.4	6.9	5.6
7	21.4	20.0	15.0	14.4	12.1	11.3	7.4	5.0
8	20.6	19.2	14.9	14.1	12.3	11.7	7.0	6.1
9	20.0	19.2	14.6	14.0	12.0	11.3	6.1	5.4
10	19.9	19.0	14.2	13.5	10.4	9.6	7.0	5.0
11	19.1	18.7	13.8	13.2	10.5	9.9	7.2	5.0
12	19.0	18.8	13.9	13.0	11.0	10.0	7.5	5.4
13	19.9	19.2	13.2	12.4	10.6	9.7	7.5	6.4
14	19.7	19.0	13.5	12.4	10.9	9.6	6.9	5.5
15	19.5	18.5	14.0	13.0	11.2	10.2	5.9	5.1
16	19.4	18.5	13.8	13.0	12.0	10.2	6.8	5.1
17	18.6	18.4	14.4	13.3	11.4	10.2	7.0	5.2
18	18.6	18.0	13.9	13.5	10.5	9.7	7.0	5.2
19	18.5	17.0	13.6	12.9	10.1	9.3	6.5	4.6
20	17.6	16.8	13.6	12.2	10.0	9.1	5.9	5.4
21	17.4	16.2	14.0	12.2	10.9	9.3	6.3	5.4
22	16.0	15.6	14.0	13.1	10.9	10.2	5.9	5.1
23	17.1	15.7	13.6	13.4	10.2	8.9	5.5	4.4
24	16.8	16.0	13.9	13.5	9.4	8.0	5.0	4.0
25	16.5	15.5	13.2	12.1	8.8	7.8	5.7	3.8
26	16.0	15.3	12.3	11.6	8.4	7.5	5.4	3.6
27	15.4	14.6	12.6	11.4	8.0	6.8	5.4	4.9
28	14.8	14.0	12.3	11.7	8.0	6.9	5.4	4.0
29	14.6	13.7	12.5	11.6	8.0	7.0	5.4	4.0
30	15.5	14.5	12.5	11.6	8.0	6.2	5.1	2.9
31	-	-	12.9	11.8	-	-	3.9	2.6
Mean	18.2	17.3	13.9	13.1	10.7	9.7	6.3	5.0
°C	17.7		13.5		10.2		5.6	
°F	63.9		56.3		50.4		42.1	

* Narragansett Marine Laboratory Pier.

Ambrose Lightship

Surface water temperatures during the spring months tended to lag behind the means for the period of record (1937-1955) (Bumpus, 1957), were equivalent during the summer, commenced to cool off more quickly in late September and early October, then more slowly in late October and November.

Minimum temperatures throughout the whole water column were observed during the last third of March at less than 38°F. The thermocline commenced development in April. Maximal temperatures at the surface of 72°F occurred during the first third of September and at the bottom of 59°F during the last third of October and first two-thirds of November.

The surface salinity ranged from a maximum of 32.4°/00 at the beginning of the year to 26.0°/00 during mid-April and gradually recovered to 32.0°/00 at the end of the year. Bottom salinities tended to be several parts per thousand salter than surface water except during the fall overturn in October and November.

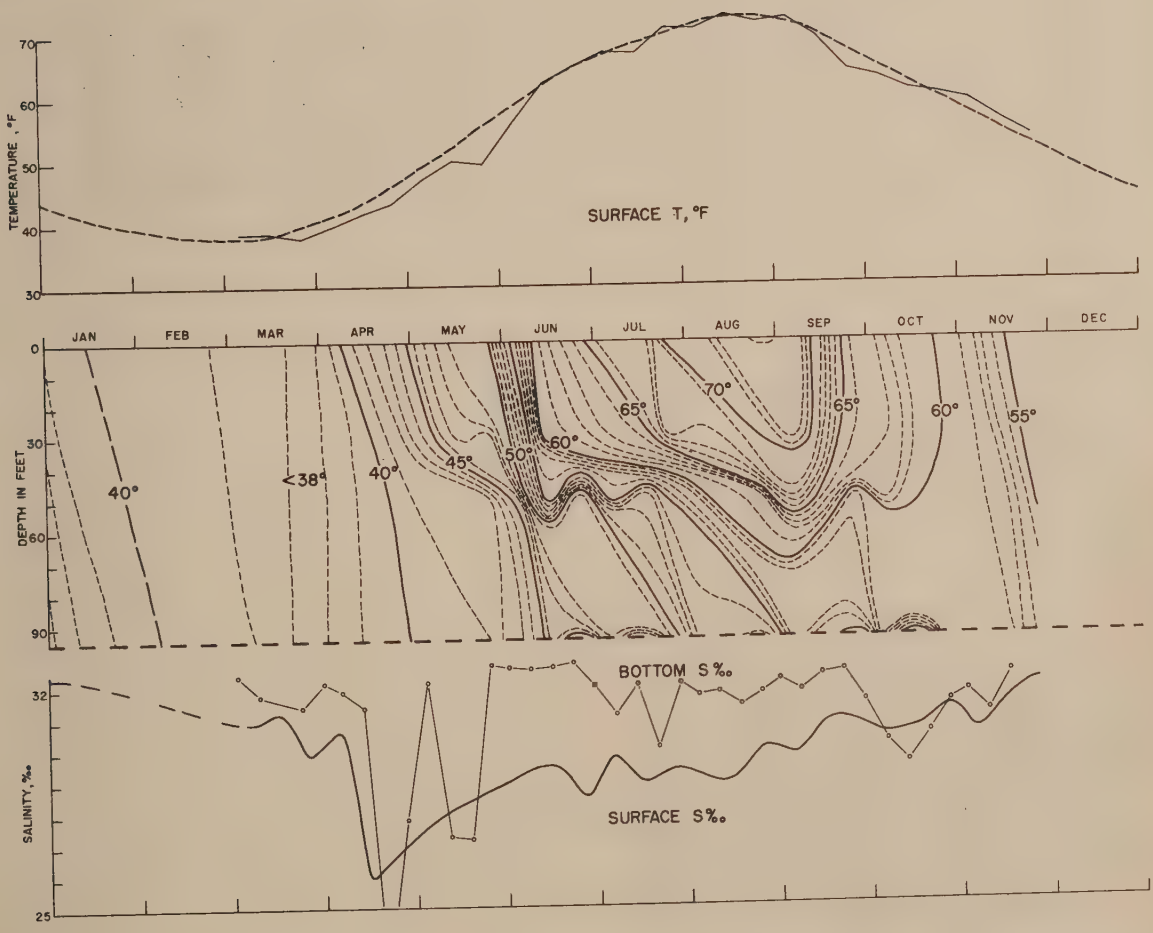

Figure 11. Ambrose Lightship, 1956. (Dashed line in upper diagram, mean for period 1937-1956)

Table 10

AMBROSE LIGHTSHIP 40° 27.1'N. 73° 49.4'W. Depth of water - 95 feet

	1955 December						1956 January					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	95'	0'	95'	0'	30'	50'	95'	0'	95'
1							41.0	40.5	41.3	43.3	31.96	-
2							40.7	40.7	41.3	42.1	32.30	-
3							40.8	41.7	42.4	42.8	.29	-
4							40.3	40.9	41.4	42.6	.29	-
5							41.1	41.1	41.1	42.2	.51	-
6							41.6	41.6	41.6	41.7	.73	-
7							40.7	40.7	40.7	40.7	32.67	-
8												
9												
10												
11												
12												
13												
14	44.6	44.9	47.5	48.8	31.69	32.67						
15	44.3	45.2	47.3	49.3	.84	-						
16	45.5	46.2	47.0	48.2	.40	-						
17	43.9	44.7	47.2	47.7	31.49	-						
18	42.7	44.1	47.4	48.4	30.62	-						
19	42.5	43.2	45.3	47.9	31.38	-						
20	44.4	44.7	44.7	48.0	32.23	-						
21	43.9	44.1	44.6	46.9	32.28	33.00						
22	43.8	43.8	44.0	44.8	31.64	-						
23	40.5	40.7	42.4	46.2	31.20	-						
24	42.2	43.0	44.2	46.8	32.21	-						
25	40.3	45.2	46.0	45.9	31.10	-						
26	42.9	43.0	43.1	45.4	32.08	-						
27	43.9	43.9	44.1	44.7	32.79	-						
28	45.2	45.2	45.2	45.1	33.11	33.11						
29	43.4	43.3	43.6	44.6	32.86	-						
30	42.4	42.7	42.8	43.9	.62	-						
31	42.2	42.4	42.3	42.3	32.76	-						
Mean	43.3	43.9	44.9	46.4	31.96	32.92						

Table 10 (cont'd)

AMBROSE LIGHTSHIP — 40° 27.1'N. 73° 49.4'W. — Depth of water - 95 feet

1956

	March						April					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	95'	0'	95'	0'	30'	50'	95'	0'	95'
1	-	-	-	-	-	-	38.	-	-	-	30.64	-
2	37.6	38.0	38.0	39.1	-	32.41	39.5	38.0	37.7	38.0	29.46	-
3	38.0	37.4	37.9	39.3	-	-	38.5	38.2	37.7	38.1	31.01	-
4	37.7	36.9	38.1	38.2	-	-	39.	-	-	-	30.30	-
5	38.8	38.8	39.0	39.6	29.40	-	40.5	39.0	37.9	37.9	29.12	-
6	38.7	38.7	38.7	39.1	31.99	-	42.7	38.2	37.9	37.9	-	31.86
7	38.8	38.5	39.0	39.5	-	-	39.0	38.8	37.3	37.3	30.33	-
8	39.0	39.0	39.1	39.1	31.67	-	38.9	38.8	38.9	39.0	31.36	-
9	38.8	38.7	38.8	38.8	30.47	31.77	39.0	38.8	39.0	39.0	.33	-
10	38.8	38.9	39.1	39.2	.81	-	39.7	39.3	39.0	38.9	31.59	-
11	39.8	39.4	39.0	39.8	.59	-	40.5	39.3	38.8	38.8	30.29	-
12	39.7	39.5	39.3	40.0	30.89	-	40.	-	-	-	30.31	-
13	38.9	38.8	38.9	-	31.00	-	40.8	39.5	39.7	-	28.72	31.36
14	39.	-	-	-	-	-	41.6	39.2	39.1	39.0	28.19	-
15	39.0	38.5	39.0	39.1	31.10	-	41.5	39.6	39.0	39.0	23.79	-
16	38.8	38.8	38.8	39.1	.51	-	42.0	39.8	39.0	-	25.40	-
17	38.3	38.3	38.3	38.0	.46	-	42.3	40.5	39.5	39.5	23.83	-
18	37.5	37.7	37.8	38.0	.43	-	42.0	39.9	39.3	39.2	21.00	-
19	37.5	37.5	37.5	37.4	.28	-	42.2	40.4	39.5	39.5	23.49	-
20	37.3	37.2	37.2	37.3	.49	-	42.5	-	-	-	24.71	22.80
21	37.2	37.2	37.2	37.2	.50	-	41.5	40.6	39.4	39.5	28.70	-
22	37.5	37.3	37.2	37.2	.44	-	42.5	40.3	39.6	39.6	23.51	-
23	37.8	37.1	37.1	37.3	31.11	31.39	43.5	-	-	-	25.91	-
24	37.8	37.2	37.1	37.1	26.68	-	42.2	40.3	40.0	40.2	26.27	-
25	36.8	36.8	37.2	37.4	31.28	-	42.5	41.7	40.1	40.1	27.35	-
26	37.2	37.2	37.2	38.0	29.58	-	42.7	42.3	40.8	40.1	27.02	-
27	37.5	37.0	37.5	37.8	.74	-	42.1	41.7	40.2	40.1	27.49	27.83
28	38.4	37.9	-	-	.78	-	43.2	42.0	40.5	-	27.76	-
29	38.2	38.1	38.0	38.7	.06	-	46.0	41.8	40.6	-	26.94	-
30	38.2	37.6	37.8	38.2	.06	32.14	45.0	41.9	40.5	-	27.65	-
31	38.2	38.0	38.0	38.3	29.10	-						
Mean	38.2	38.0	38.1	38.4	30.54	31.93	41.4	40.0	39.2	39.0	27.70	28.46

Table 10 (cont'd)

AMBROSE LIGHTSHIP 40° 27.1'N. 73° 49.4'W. Depth of water - 95 feet

1956

Depth / Day	May Temperature °F 0'	30'	50'	95'	May Salinity °/oo 0'	95'	June Temperature °F 0'	30'	50'	95'	June Salinity °/oo 0'	95'
1	46.6	43.2	41.4	40.5	28.83	-	53.0	46.8	41.2	41.2	26.74	32.61
2	47.5	44.2	40.7	40.4	20.53	-	51.6	46.0	41.4	41.5	28.15	-
3	47.0	-	-	-	28.51	-	54.0	50.2	41.4	41.2	27.92	-
4	47.5	44.7	40.8	40.9	29.51	32.17	56.6	51.4	42.3	41.7	29.40	-
5	47.1	45.0	41.0	40.7	29.45	-	57.3	53.4	42.4	41.9	30.06	-
6	46.8	44.6	41.6	40.8	25.23	-	55.8	50.5	46.0	42.4	30.48	-
7	47.6	44.4	40.5	40.9	28.76	-	57.6	52.2	48.0	43.2	29.15	-
8	46.6	45.6	42.3	40.8	29.93	-	56.5	52.6	50.8	43.6	29.48	32.59
9	46.9	46.0	42.6	40.9	28.63	-	58.0	54.0	50.4	44.4	30.34	-
10	46.4	45.5	42.0	40.9	27.30	-	58.0	57.7	51.0	48.0	.87	-
11	47.	-	-	-	27.24	27.25	58.7	57.9	52.5	47.8	.76	-
12	47.5	-	-	-	28.01	-	60.1	57.2	52.2	48.1	30.82	-
13	50.0	43.1	41.3	40.8	27.31	-	60.0	60.0	55.5	48.6	29.98	-
14	51.5	42.6	40.8	40.9	27.36	-	61.9	59.9	53.7	46.1	29.37	-
15	51.5	-	-	-	29.53	-	62.0	60.8	56.5	46.1	28.12	31.64
16	51.5	50.0	44.2	41.7	26.83	-	63.8	62.1	59.6	45.3	26.73	-
17	49.7	49.5	43.0	41.1	29.50	-	63.5	60.0	56.2	45.1	29.25	-
18	49.9	49.2	41.3	40.6	27.01	27.19	65.	-	-	-	30.17	-
19	51.2	48.8	41.1	40.7	29.29	-	62.8	62.5	55.1	-	30.59	-
20	48.2	46.6	41.5	40.7	30.07	-	62.0	60.2	55.6	47.5	28.79	-
21	50.3	46.8	41.4	40.6	27.91	-	63.5	-	-	-	.67	-
22	51.3	46.9	40.8	40.8	27.91	-	63.6	60.7	47.7	45.0	.25	31.74
23	48.0	46.2	41.1	40.8	30.12	-	62.2	61.3	45.2	42.8	.49	-
24	48.5	-	-	-	27.01	-	62.4	62.3	54.0	43.2	28.08	-
25	46.5	-	-	-	30.31	32.73	65.1	61.3	48.4	44.9	29.04	-
26	48.2	45.0	41.2	-	28.45	-	68.2	61.8	51.8	45.0	29.28	-
27	49.0	46.0	41.6	41.0	28.77	-	65.	-	-	-	27.81	-
28	50.	-	-	-	29.51	-	63.8	55.1	46.9	44.5	28.38	-
29	48.5	47.5	41.3	41.3	30.98	-	64.0	62.6	48.0	43.5	28.80	32.04
30	50.5	47.7	41.2	41.4	27.93	-	65.8	67.0	49.4	43.2	27.84	-
31	51.0	45.0	41.2	41.1	26.88	-						
Mean	48.7	46.0	41.5	40.9	28.21	29.84	60.8	57.3	49.7	44.4	29.06	32.12

Table 10 (cont'd)

AMBROSE LIGHTSHIP — 40° 27.1'N. 73° 49.4'W. — Depth of water - 95 feet

1956

Depth / Day	July Temperature °F 0'	30'	50'	95'	July Salinity °/oo 0'	95'	August Temperature °F 0'	30'	50'	95'	August Salinity °/oo 0'	95'
1	68.9	60.1	48.2	44.4	28.45	-	70.8	67.2	54.2	50.7	27.96	-
2	65.6	60.0	47.9	43.6	27.93	-	71.5	66.5	53.5	51.0	28.83	-
3	67.6	58.1	48.9	43.5	29.76	-	71.0	70.8	55.0	51.8	29.68	31.65
4	66.	-	-	-	30.81	-	69.4	68.2	57.4	53.1	28.87	-
5	66.9	65.1	52.9	44.0	30.95	-	69.9	59.2	54.7	52.0	28.65	-
6	64.9	64.9	64.8	52.3	30.92	31.08	70.2	64.8	56.4	51.2	29.33	-
7	67.3	67.0	66.9	51.8	30.33	-	71.0	71.5	71.4	54.5	.37	-
8	68.	-	-	-	29.66	-	70.5	70.7	68.9	56.8	.98	-
9	67.1	65.5	56.8	53.4	.35	-	70.7	70.3	63.5	55.0	29.22	-
10	67.0	65.8	54.2	51.0	.15	-	71.0	69.3	61.9	56.7	28.58	31.78
11	63.8	63.5	54.3	48.3	29.75	-	71.5	70.0	59.8	56.2	29.56	-
12	65.4	64.5	54.1	45.4	28.99	-	71.9	70.3	64.0	56.0	28.79	-
13	65.7	65.4	54.0	45.0	29.01	32.06	72.0	70.9	65.2	54.4	28.53	-
14	67.8	67.5	56.2	46.6	.71	-	72.1	69.3	61.7	52.0	29.00	-
15	65.8	65.1	51.2	45.0	29.30	-	72.9	70.1	57.7	53.2	28.77	-
16	67.2	62.8	50.9	43.3	28.69	-	73.5	67.0	58.9	50.6	28.36	-
17	67.4	62.2	53.0	44.1	.48	-	74.1	69.6	59.0	52.2	29.17	31.35
18	66.9	60.0	52.1	44.5	28.75	-	73.8	65.0	58.5	52.2	.41	-
19	68.6	66.9	51.5	46.0	29.01	-	73.4	69.0	62.4	54.0	.17	-
20	69.7	64.4	50.6	46.3	27.79	30.04	72.0	65.6	58.3	50.2	29.42	-
21	69.8	69.0	52.2	-	30.63	-	71.3	71.0	61.0	51.5	30.10	-
22	68.9	68.8	68.6	52.1	.71	-	71.4	71.4	69.8	55.6	.32	-
23	70.2	68.9	59.9	52.2	.32	-	71.0	71.2	69.8	57.1	30.36	-
24	70.5	69.8	54.9	50.9	30.17	-	71.0	71.0	63.5	56.0	29.16	31.75
25	69.5	68.8	52.1	48.1	28.71	-	70.7	70.6	62.9	54.1	.49	-
26	69.8	68.1	52.3	47.9	.50	-	71.0	71.3	63.0	53.5	29.60	-
27	69.8	69.7	53.3	48.7	.69	32.07	71.0	70.7	62.7	51.5	28.98	-
28	74.5	-	-	-	.07	-	71.3	71.7	62.1	54.0	29.94	-
29	75.	-	-	-	28.95	-	72.5	67.6	58.1	48.2	30.49	-
30	70.9	70.0	52.4	48.4	29.61	-	72.8	63.8	50.8	48.3	.86	-
31	68.9	66.0	52.9	49.0	28.12	-	73.5	72.8	58.5	51.0	30.95	32.15
Mean	68.2	65.5	54.3	47.5	29.33	31.31	71.6	69.0	60.8	53.0	29.38	31.74

Table 10 (cont'd)

AMBROSE LIGHTSHIP — 40° 27.1'N. 73° 49.4'W. — Depth of water - 95 feet

1956

Day	September Temperature °F 0'	30'	50'	95'	September Salinity °/oo 0'	95'	October Temperature °F 0'	30'	50'	95'	October Salinity °/oo 0'	95'
1	73.7	72.7	70.9	-	30.34	-	62.7	63.0	63.8	62.2	30.39	-
2	72.0	72.7	69.0	58.3	28.91	-	63.1	63.2	63.4	63.0	31.12	-
3	72.2	72.0	65.5	58.0	29.52	-	62.8	63.8	63.7	62.8	29.79	-
4	72.2	73.0	69.5	57.1	28.35	-	62.3	63.9	63.3	-	29.30	-
5	72.1	73.6	68.5	58.5	29.74	-	62.9	63.7	63.5	56.9	29.56	30.19
6	72.7	73.7	69.5	59.1	29.56	-	62.5	62.7	61.6	54.9	30.87	-
7	73.0	73.4	66.5	60.0	29.73	31.81	63.2	63.5	63.4	-	30.59	-
8	71.8	71.9	69.1	53.9	30.29	-	62.1	62.6	63.0	60.0	30.42	-
9	70.7	70.9	70.8	55.7	30.78	-	63.0	63.0	62.8	56.2	30.75	-
10	70.2	70.3	70.1	-	31.00	-	62.0	62.0	58.0	-	30.84	-
11	68.4	70.1	70.0	62.1	29.96	-	61.4	61.4	58.8	52.0	31.06	-
12	69.8	69.7	68.3	56.1	30.86	-	61.0	61.0	60.1	53.9	31.05	29.49
13	69.3	69.2	55.9	52.9	30.60	-	61.0	61.0	60.7	56.4	31.12	-
14	69.5	68.9	59.0	52.2	31.01	32.31	60.9	60.9	61.1	57.0	31.48	-
15	69.7	68.0	54.0	51.8	30.95	-	60.8	60.7	60.2	55.8	30.95	-
16	69.6	-	-	-	31.05	-	61.0	61.6	61.5	53.1	29.27	-
17	69.1	69.0	68.9	58.0	30.93	-	60.8	61.0	60.9	54.9	30.74	-
18	69.2	69.1	69.1	59.1	31.05	-	59.9	60.2	59.3	52.9	29.54	-
19	68.1	68.1	68.0	-	-	-	60.2	60.9	-	-	30.41	30.41
20	67.6	67.5	67.5	53.9	30.66	-	59.8	60.8	60.7	57.8	30.41	-
21	66.2	66.5	65.9	49.4	30.85	32.45	60.4	61.0	60.7	58.4	30.61	-
22	63.9	66.1	65.8	48.2	29.75	-	60.8	60.9	60.9	-	30.82	-
23	65.0	66.0	55.1	48.1	30.03	-	60.9	60.9	60.8	59.3	31.18	-
24	62.9	65.0	47.3	47.1	29.99	-	61.5	61.2	60.7	59.4	31.09	-
25	61.3	56.9	47.1	47.0	30.71	-	58.5	58.9	59.0	58.6	31.30	-
26	64.0	63.9	53.5	48.5	31.20	-	59.5	59.9	59.9	59.9	31.34	31.44
27	64.6	64.9	64.8	64.7	31.36	-	59.6	59.6	59.7	-	31.30	-
28	63.8	63.9	63.9	63.9	31.34	31.44	59.3	59.3	59.3	59.4	31.61	-
29	63.0	63.0	63.0	63.0	31.56	-	59.0	59.1	59.1	59.0	31.36	-
30	63.0	63.1	63.1	62.8	31.16	-	59.2	59.2	59.2	-	31.37	-
31							59.8	59.7	59.5	59.6	31.36	-
Mean	68.3	68.4	64.1	55.7	30.46	32.00	60.9	61.3	61.0	57.6	30.74	30.38

Table 10 (cont'd)

AMBROSE LIGHTSHIP 40° 27.1'N. 73° 49.4'W. Depth of water - 95 feet

1956

November

Day	Temperature °F 0'	30'	50'	95'	Salinity °/oo 0'	95'
1	59.1	59.1	59.1	59.0	29.72	-
2	59.2	59.8	59.7	59.5	29.42	31.74
3	59.2	59.1	59.1	59.1	31.54	-
4	58.5	-	-	-	.43	-
5	59.3	59.4	59.5	59.7	.43	-
6	59.2	59.2	59.3	59.4	31.49	-
7	59.1	59.4	59.5	59.4	29.66	-
8	58.5	-	-	-	28.55	-
9	58.4	58.8	59.4	58.5	31.12	31.08
10	57.3	57.9	-	-	30.80	-
11	56.7	57.6	58.0	58.3	.92	-
12	57.0	57.4	58.0	58.6	.98	-
13	56.3	56.8	-	-	30.64	-
14	56.2	56.3	-	-	31.23	-
15	54.	-	-	-	31.21	-
16	57.3	57.3	58.9	59.5	32.28	32.30
17	56.4	56.9	57.8	60.0	31.82	-
18	55.2	56.3	58.0	60.9	-	-
19	54.9	55.7	-	-	31.90	-
20	54.7	55.2	58.2	60.8	31.83	-
21	55.3	55.6	58.1	60.0	30.82	-
22	52.	-	-	-	32.38	-
23	54.8	55.7	56.3	-	.41	-
24	53.9	54.7	54.9	59.0	.51	-
25	54.1	54.1	54.5	59.5	.51	-
26	53.3	53.3	54.0	54.9	.06	-
27	53.4	53.4	54.9	54.9	32.59	-
28	52.3	53.0	53.9	54.5	31.60	-
29	51.7	53.4	-	-	.71	-
30	50.3	51.1	53.0	56.1	31.71	-
31						
Mean	55.9	56.4	57.5	58.6	31.32	31.71

Barnegat Lightship

Minimum surface temperature of 38°F occurred during the last third of January. Surface temperatures remained less than 40° until during the first third of April. The vernal warming lagged behind the mean for the period of record 1947-1956 until the end of June. Maximum temperatures of 75°F were observed during the first third of September followed by autumnal cooling virtually identical with the mean for the period of record.

The thermocline commenced development in April, reached its maximum in July. Maximum temperature at the bottom of nearly 64°F was reached in early October when the autumn overturn reached the bottom following which the temperature in the water column was essentially isothermal for the remainder of the year.

The surface salinity commenced at the beginning of the year at slightly above 32°/00, gradually descended to a minimum of just over 30°/00 during mid-June and gradually recovered to just under 32°/00 by year end. Bottom salinities remained, for the most part, in the vicinity of 32°/00. Surface and bottom salinities took an unexplained jump in the last third of October to 33°/00.

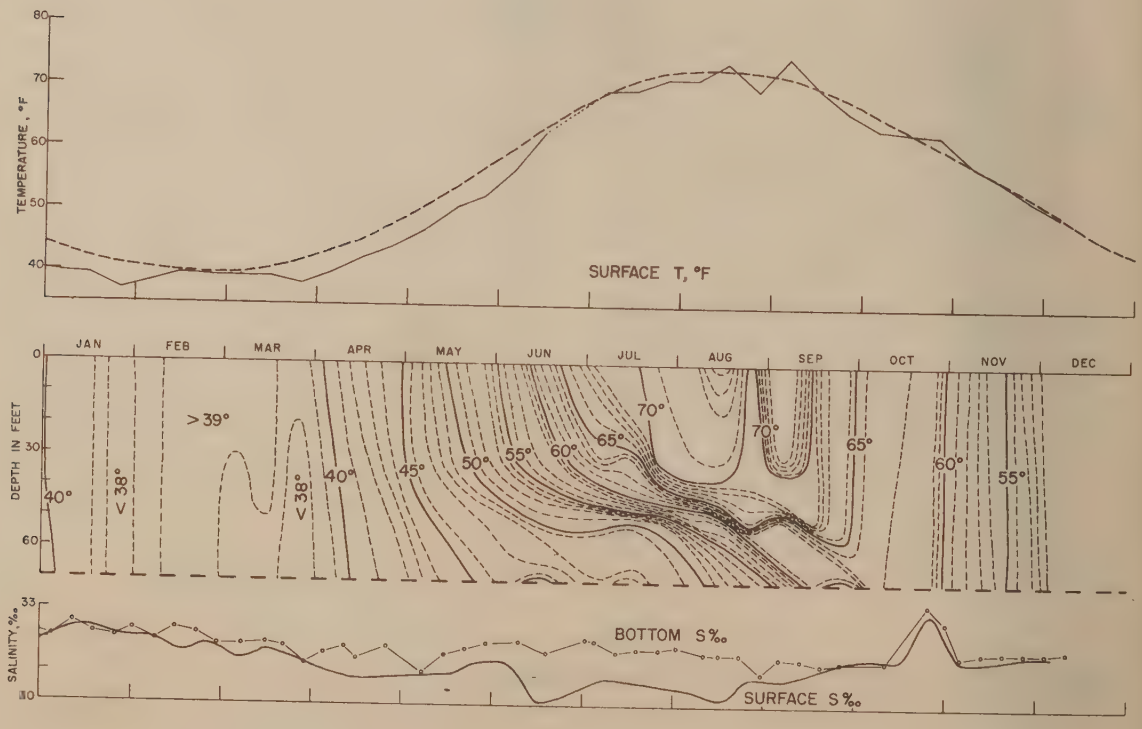

Figure 12. Barnegat Lightship, 1956. (Dashed line in upper diagram, mean for period 1947-1956)

Table 11

BARNEGAT LIGHTSHIP 39°45.8'N. 75°56.0'W. Depth of water - 72 feet

1955

December

Depth Day	Temperature °F 0'	30'	50'	70'	Salinity °/oo 0'	70'	Temperature °F 0'	30'	50'	70'	Salinity °/oo 0'	70'
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14							44.9	44.8	44.8	44.8	31.16	31.22
15							44.4	44.5	45.1	45.1	.10	-
16							44.2	44.2	44.2	44.2	.31	-
17							44.1	44.1	44.1	44.1	.46	-
18							41.5	42.4	42.8	43.9	.06	-
19							42.7	42.8	42.8	43.7	.39	-
20							42.1	42.0	42.0	41.9	.41	-
21							41.6	41.8	41.8	41.8	.48	31.52
22							40.9	40.8	40.8	40.6	.52	-
23							40.6	40.8	40.8	40.4	.51	-
24							41.1	41.0	41.1	41.1	.54	-
25							38.8	39.3	41.0	41.8	.11	-
26							40.7	40.7	40.3	40.8	.57	-
27							39.9	39.9	39.7	39.6	.56	-
28							40.2	40.7	40.9	40.9	.97	-
29							39.6	40.5	40.8	41.0	31.97	32.26
30							40.6	40.7	40.7	40.5	32.25	-
31							39.9	40.0	40.0	40.0	-	-

Table 11 (cont'd)

BARNEGAT LIGHTSHIP 39°45.8'N. 75°56.0'W. Depth of water - 72 feet

1956

Depth / Day	January Temperature °F 0'	30'	50'	70'	January Salinity °/oo 0'	70'	February Temperature °F 0'	30'	50'	70'	February Salinity °/oo 0'	70'
1	37.6	37.6	37.6	38.2	31.71	-	37.7	37.7	37.7	38.3	32.10	32.35
2	38.3	38.3	38.7	39.1	32.02	-	37.9	37.7	38.0	38.4	.19	-
3	37.4	37.5	38.2	39.1	31.68	-	37.5	37.9	37.5	38.1	.04	-
4	43.	-	-	-	31.87	32.14	38.0	38.0	38.0	38.2	.24	-
5	-	-	-	-	-	-	38.2	38.2	38.2	38.2	.21	-
6	41.2	41.3	41.7	41.8	32.64	-	38.1	38.0	38.0	38.1	.16	-
7	41.2	41.3	41.7	41.9	.65	-	38.8	38.5	38.2	38.5	32.14	-
8	-	-	-	-	-	-	38.5	38.3	38.2	38.3	31.97	32.05
9	-	-	-	-	-	-	38.9	38.9	38.9	38.9	.98	-
10	-	-	-	-	-	-	39.2	39.0	39.0	39.0	31.95	-
11	40.9	40.8	40.8	40.8	.60	32.59	39.2	39.2	39.2	39.1	32.19	-
12	-	-	-	-	-	-	39.9	39.5	39.3	39.2	32.02	-
13	41.0	40.9	41.0	41.0	.61	-	39.5	39.9	39.7	39.3	31.70	-
14	40.9	41.0	40.9	41.0	.49	-	39.0	38.8	39.0	39.0	31.60	-
15	39.3	39.4	39.4	39.4	.44	-	39.9	39.7	39.8	40.0	29.84	32.43
16	39.6	39.4	39.3	39.3	.70	-	40.1	40.0	39.8	40.1	31.93	-
17	39.0	-	-	-	.29	-	39.9	39.9	39.9	39.9	32.00	-
18	38.1	38.1	38.1	38.1	.28	32.27	40.0	40.0	40.0	40.0	31.85	-
19	37.9	37.9	37.9	37.9	.27	-	40.0	40.0	40.0	39.9	32.03	-
20	37.9	38.0	38.0	38.0	.24	-	39.8	40.1	40.1	40.2	31.71	-
21	37.7	37.7	37.7	37.7	.24	-	39.8	39.9	40.1	40.2	31.89	-
22	37.7	37.7	37.7	37.7	.24	-	40.0	40.0	40.0	39.8	32.22	32.28
23	36.7	36.7	37.8	37.8	.39	-	39.1	39.3	39.0	39.1	.27	-
24	37.2	37.2	37.2	37.0	.08	-	39.1	39.0	39.0	39.4	32.48	-
25	37.1	37.1	37.1	37.1	.11	32.13	-	-	-	-	-	-
26	37.3	37.3	37.3	37.3	.14	-	38.8	38.9	38.9	38.9	31.05	-
27	35.4	35.4	35.5	35.5	32.36	-	39.0	39.0	39.0	39.0	31.14	-
28	37.9	37.9	37.9	37.9	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	39.3	39.3	39.2	39.2	31.94	31.92
30	36.5	36.6	38.0	38.3	31.84	-						
31	37.6	37.0	37.0	38.0	32.14	-						
Mean	38.6	38.3	38.5	38.7	32.25	32.28	39.1	39.1	39.0	39.1	31.88	32.20

Table 11 (cont'd)

BARNEGAT LIGHTSHIP 39°45.8'N. 75°56.0'W. Depth of water - 72 feet

1956

March

Day	Temperature °F Depth 0'	30'	50'	70'	Salinity °/oo Depth 0'	70'
1	39.2	39.0	38.9	38.8	32.09	-
2	38.5	38.6	38.5	38.4	31.61	-
3	39.4	38.5	38.2	38.4	30.95	-
4	39.0	39.0	38.9	38.8	31.62	-
5	40.	-	-	-	31.24	-
6	-	-	-	-	-	-
7	40.0	39.4	39.2	39.1	31.86	31.94
8	39.0	39.1	39.1	39.0	31.93	-
9	39.0	39.0	38.9	38.9	30.97	-
10	40.0	39.0	39.0	39.0	30.86	-
11	39.8	39.6	39.1	39.0	31.24	-
12	40.1	40.0	39.1	39.2	31.45	-
13	39.5	39.3	39.2	39.2	32.08	-
14	-	-	-	-	-	-
15	39.8	39.7	39.5	39.5	31.96	32.00
16	-	-	-	-	-	-
17	-	-	-	-	-	-
18	38.8	38.9	38.9	38.9	31.69	-
19	-	-	-	-	-	-
20	37.9	37.9	37.9	37.9	31.92	-
21	37.0	38.8	-	-	31.87	31.88
22	38.5	37.9	37.9	37.8	.82	-
23	40.0	38.0	37.9	37.9	.33	-
24	-	-	-	-	-	-
25	37.9	37.5	37.8	37.8	.30	-
26	38.0	37.5	37.8	37.8	.28	-
27	38.8	38.0	37.8	37.8	.31	-
28	38.0	38.0	38.0	38.0	.31	31.30
29	37.2	37.2	37.2	37.2	.32	-
30	38.3	38.0	38.0	37.8	.26	-
31	38.1	38.0	37.9	37.9	31.29	-
Mean	38.9	38.6	38.5	38.4	31.50	31.78

April

Day	Temperature °F Depth 0'	30'	50'	70'	Salinity °/oo Depth 0'	70'
1	39.5	38.0	38.0	37.9	31.28	-
2	38.8	38.4	38.0	37.9	31.04	-
3	39.5	39.0	38.2	38.0	30.96	-
4	40.9	39.0	38.0	38.0	.61	31.68
5	40.0	39.5	38.0	38.0	.75	-
6	41.1	39.9	38.1	38.1	30.65	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	39.8	39.7	39.5	39.5	31.77	-
10	41.0	39.9	39.5	39.4	.78	-
11	40.0	40.1	40.0	39.4	31.82	31.86
12	-	-	-	-	-	-
13	-	-	-	-	-	-
14	43.4	40.2	40.2	40.2	29.71	-
15	42.9	41.1	40.9	40.8	28.35	31.52
16	-	-	-	-	-	-
17	42.0	41.8	41.1	41.0	31.34	-
18	42.0	41.6	40.8	40.8	.38	-
19	44.	-	-	-	.37	-
20	43.4	42.7	41.0	40.9	31.83	-
21	-	-	-	-	-	-
22	45.0	42.5	41.4	41.0	30.01	-
23	43.2	42.4	41.2	41.1	31.19	-
24	43.	-	-	-	30.84	-
25	43.3	42.0	41.1	41.1	.99	31.86
26	43.7	43.6	41.4	41.3	.75	-
27	44.5	44.0	41.5	41.2	30.75	-
28	44.5	44.0	41.5	41.1	31.24	-
29	-	-	-	-	-	-
30	46.0	44.1	42.8	41.8	31.23	-
Mean	42.2	41.1	40.1	39.9	30.94	31.73

Table 11 (cont'd)

BARNEGAT LIGHTSHIP 39°45.8'N. 75°56.0'W. Depth of water - 72 feet

1956

	May						June					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1							53.2	51.0	47.8	46.9	31.58	-
2							54.2	53.4	47.1	46.9	.29	-
3							55.3	54.0	48.3	47.0	.49	-
4							57.1	54.9	48.3	47.0	.42	32.04
5							56.6	56.1	48.9	46.6	.46	-
6	47.3	47.1	41.9	41.9	31.00	-	58.0	56.6	47.3	46.6	.46	-
7	47.8	47.4	43.1	42.1	.80	31.05	58.0	55.2	47.2	47.0	31.44	-
8	46.0	45.9	45.3	41.3	31.01	-	58.8	54.2	47.0	46.9	30.25	-
9	46.5	46.4	46.1	44.0	29.79	-	57.8	55.2	47.1	47.0	31.51	-
10	46.5	46.2	46.0	43.2	31.34	-	58.1	57.9	56.8	47.4	31.56	-
11	46.9	46.8	46.0	43.9	.38	-	58.1	57.3	48.1	47.5	30.48	-
12	47.6	46.8	46.0	44.1	31.41	-	60.9	51.0	46.9	45.0	29.65	-
13	49.8	47.5	46.2	44.1	30.81	-	62.8	53.0	-	-	30.10	-
14	51.1	47.0	45.1	44.6	31.10	31.64	61.2	55.0	45.8	45.9	31.00	-
15	50.8	50.0	46.7	43.5	.32	-	65.2	58.6	46.8	43.9	29.74	-
16	51.8	50.0	45.3	43.8	31.22	-	62.1	55.4	48.0	40.0	29.42	-
17	50.7	50.3	45.8	44.2	30.64	-	64.9	59.6	55.0	44.5	28.86	-
18	51.0	50.5	46.1	44.8	.90	-	64.9	62.0	56.0	44.8	30.76	31.68
19	52.0	49.0	48.0	-	.34	-	62.	-	-	-	.96	-
20	52.0	51.7	46.8	44.1	.79	-	62.9	63.5	53.9	45.1	.25	-
21	52.5	52.0	44.7	44.4	.92	31.82	65.1	63.1	51.7	44.2	.10	-
22	53.0	52.5	51.0	44.1	30.98	-	64.3	63.7	49.9	44.8	30.48	-
23	52.8	52.6	44.4	44.1	31.28	-						
24	53.1	53.0	44.2	44.2	.42	-						
25	53.0	53.0	45.0	44.2	31.41	-						
26	51.5	51.7	44.5	44.3	30.59	-						
27	52.5	52.5	50.8	44.0	31.57	-						
28	51.5	49.4	46.3	46.4	.61	32.01						
29	52.4	51.9	47.0	46.4	.69	-						
30	51.5	51.5	51.0	47.0	-	-						
31	51.0	50.0	48.0	46.9	31.74	-						
Mean	50.5	49.7	46.2	44.2	31.12	31.63						

Table 11 (cont'd)

BARNEGAT LIGHTSHIP 39°45.8'N. 75°56.0'W. Depth of water - 72 feet

1956

	July						August					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1	68.6	61.0	46.8	45.1	30.73	32.12	70.6	70.2	47.5	46.9	30.54	31.88
2	67.2	54.7	49.1	46.0	31.06	-	-	-	-	-	-	-
3	69.3	56.4	47.2	46.0	30.93	-	71.5	71.4	49.8	48.7	.57	-
4	70.9	67.0	47.0	46.0	30.91	32.08	72.0	71.3	50.0	49.0	.66	-
5	69.5	69.0	46.1	46.0	31.09	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	69.7	68.9	55.2	52.2	31.00	-	-	-	-	-	-	-
8	70.2	69.2	57.3	51.2	30.77	-	70.3	70.0	69.8	-	.84	-
9	69.3	69.7	55.3	50.5	.47	-	71.7	70.8	69.0	-	.39	-
10	69.8	67.7	50.7	48.8	.37	-	72.1	71.5	66.8	52.1	30.31	30.66
11	70.9	70.0	56.6	48.0	.46	31.72	72.5	70.8	67.8	52.0	29.92	-
12	71.0	70.3	55.4	48.2	.87	-	-	-	-	-	-	-
13	70.5	67.9	53.0	47.0	.63	-	72.8	71.0	65.0	51.2	29.79	-
14	67.1	63.5	49.1	46.9	.87	-	74.	-	-	-	30.13	-
15	68.5	59.7	47.7	46.8	.79	-	75.9	72.3	54.3	51.1	.13	31.67
16	68.3	66.3	46.9	46.5	.81	-	74.1	72.3	54.2	51.1	.16	-
17	69.6	62.5	-	-	.84	-	74.8	70.6	53.0	-	.19	-
18	70.1	50.2	46.8	46.2	30.87	31.80	74.7	72.0	51.3	51.1	.21	-
19	71.0	56.0	46.5	46.0	31.09	-	75.	-	-	-	.61	-
20	70.1	60.2	47.6	46.2	30.90	-	72.8	72.8	57.7	52.3	.69	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	66.1	65.7	49.0	48.2	.97	-	63.8	63.5	62.9	-	.77	31.58
23	70.2	68.3	50.7	48.9	.91	-	68.3	68.1	67.0	-	.91	-
24	70.3	68.7	49.7	48.8	-	-	69.8	69.7	69.2	53.0	30.99	-
25	71.5	69.7	50.2	48.4	.95	31.76	70.	-	-	-	31.04	-
26	72.2	70.4	50.8	48.6	.64	-	70.5	70.3	69.4	-	30.91	-
27	72.9	70.5	52.4	47.6	.51	-	70.2	70.0	69.1	-	.93	-
28	73.0	72.5	48.0	47.6	.49	-	70.2	70.0	66.0	-	.76	-
29	73.0	72.4	48.8	48.0	.57	-	72.0	70.7	68.2	-	.74	31.04
30	72.2	72.2	49.7	49.0	.48	-	71.0	70.2	63.6	54.4	.81	-
31	72.2	72.0	59.7	48.6	30.73	-	71.5	70.3	66.0	53.6	30.81	-
Mean	70.2	66.0	50.5	47.8	30.77	31.90	71.7	70.4	61.7	51.2	30.55	31.37

Table 11 (cont'd)

BARNEGAT LIGHTSHIP 39°45.8'N. 75°56.0'W. Depth of water - 72 feet

1956

	September						October					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1	-	-	-	-	-	-	63.8	64.1	64.0	64.0	31.44	-
2	75.3	73.4	65.5	55.4	30.90	-	64.8	64.0	64.0	64.0	32.00	-
3	74.8	74.7	58.3	56.8	.96	-	64.2	64.2	64.2	64.2	31.98	-
4	75.2	73.9	59.0	-	.94	-	64.0	64.1	64.1	64.1	-	-
5	74.6	73.0	58.5	56.8	.87	31.55	64.0	64.1	64.1	64.1	.41	-
6	75.2	74.8	61.1	57.4	.29	-	64.1	64.0	64.0	64.0	-	-
7	74.8	74.9	66.7	57.1	.90	-	64.0	64.0	64.0	64.1	.41	-
8	-	-	-	-	30.84	-	63.1	63.0	63.0	63.1	.21	-
9	-	-	-	-	-	-	63.0	63.0	62.9	62.9	.54	-
10	-	-	-	-	-	-	62.	-	-	-	.52	31.41
11	71.0	70.9	70.8	70.8	31.06	-	63.0	63.0	-	-	.52	-
12	70.2	70.1	70.1	59.5	.19	31.50	62.8	62.5	-	-	.55	-
13	71.0	70.3	70.2	58.9	.08	-	65.	-	-	-	.56	-
14	69.0	69.0	68.7	58.6	.02	-	63.2	62.5	-	-	.56	-
15	70.1	70.1	67.0	59.0	.12	-	62.4	-	-	-	.43	-
16	70.1	70.0	69.9	61.8	.04	-	62.2	-	-	-	.38	-
17	70.2	70.0	69.2	60.9	.13	-	63.	-	-	-	.47	-
18	69.9	69.9	69.8	-	.14	-	-	-	-	-	-	-
19	69.8	69.6	69.4	60.2	.16	31.34	-	-	-	-	-	-
20	68.5	68.7	68.7	59.2	.32	-	63.	-	-	-	31.77	-
21	67.7	67.8	67.6	59.0	.29	-	64.	-	-	-	33.25	-
22	66.2	66.2	66.1	-	.18	-	63.	-	-	-	.58	-
23	-	-	-	-	.34	-	62.	-	-	-	.26	-
24	67.2	67.5	67.5	58.2	.66	-	62.2	62.2	-	-	33.22	33.26
25	67.0	67.2	67.0	57.8	31.49	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	62.8	62.8	62.7	62.2	31.57	-	-	-	-	-	31.78	32.70
31	-	-	-	-	-	-	-	-	-	-	-	-
Mean	70.5	70.2	66.4	59.4	31.11	31.46	-	-	-	-	31.90	32.46

Table 11 (cont'd)

BARNEGAT LIGHTSHIP 39°45.8'N. 75°56.0'W. Depth of water - 72 feet

1956

	November						December					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1							50.8	50.8	50.9	50.9	-	-
2							50.2	50.2	50.2	50.2	-	-
3							49.	-	-	-	-	-
4							49.3	49.2	50.7	50.8	-	-
5	58.5	58.4	58.3	58.3	31.65	31.63	50.1	50.1	50.1	50.2	-	-
6	58.5	58.3	58.3	58.2	.68	-	50.2	50.6	50.8	50.8	-	-
7	58.8	58.7	58.6	58.6	31.66	-	50.2	50.7	50.7	50.8	-	-
8	57.9	58.7	58.7	58.7	30.75	-	49.3	50.2	50.6	50.8	-	-
9	58.1	58.1	58.1	58.1	31.59	-	50.7	50.7	51.0	51.0	-	-
10	57.8	57.8	57.8	57.8	.74	-	50.0	50.0	50.0	50.1	-	-
11	57.1	57.1	57.1	57.1	.81	-	49.3	49.2	49.6	50.3	-	-
12	57.0	56.9	56.9	56.9	.79	31.75	49.0	49.1	50.2	50.2	-	-
13	55.9	55.9	55.9	55.9	.37	-	49.0	49.5	50.9	50.9	-	-
14	56.2	55.7	55.7	55.7	.45	-	50.0	50.0	50.0	50.0	-	-
15	55.2	55.2	55.7	56.0	.26	-	50.5	50.3	50.3	50.3	-	-
16	56.4	55.1	55.7	56.1	.16	-	50.	-	-	-	-	-
17	55.1	55.2	55.2	56.7	.18	-						
18	55.1	55.1	55.2	56.3	.37	-						
19	55.7	55.2	55.2	55.2	.81	31.79						
20	55.1	55.1	55.2	55.2	.81							
21	54.3	54.3	55.0	55.0	.50	-						
22	54.9	54.9	54.9	54.9	.56	-						
23	53.9	53.9	53.9	53.9	.48	-						
24	52.9	52.9	52.9	52.9	.48	-						
25	52.9	52.9	52.9	52.8	.59	-						
26	52.7	52.8	52.8	52.8	.74	31.77						
27	52.4	52.4	52.4	52.4	.74	-						
28	51.9	51.9	51.9	51.9	.79	-						
29	51	-	-	-	.77	-						
30	51.2	-	-	-	.68	-						
31												
Mean	55.2	55.5	55.6	55.7	31.55	31.74						

Five Fathom Bank Lightship

Surface temperatures at Five Fathom Bank Lightship were somewhat lower, month by month, during the first half of the year than the mean for 1947-1955 (Bumpus, 1957), were comparable during the autumn, and significantly warmer at year end. The annual mean was a degree lower than the 1947-1955 mean.

Minimum temperatures of less than 39°F occurred surface to bottom during the last third of January and first two-thirds of February and again during the last third of March. A winter maximum of 41°F was observed during the second third of March. The thermocline began to develop in early April. Maximum temperatures of greater than 74°F at the surface were observed in mid-August. Maximum temperatures at the bottom were not observed until the fall overturn began during the first third of October. The year ended with the water about 7°F warmer throughout the whole column than at the beginning.

As at Winter Quarter and Chesapeake Lightships the summer warming throughout the water column appears interrupted from time to time. This is most conspicuous during mid-July and late September.

The salinity at the surface commenced between 32.6°/oo and 33°/oo in January, gradually declined to 30.5°/oo in early June and recovered to 32.5°/oo at year end. Salinity at the bottom tended to follow the salinity at the surface during the winter and spring months until the thermocline began to develop, following which the bottom salinity tended to keep 1°/oo more saline than the surface.

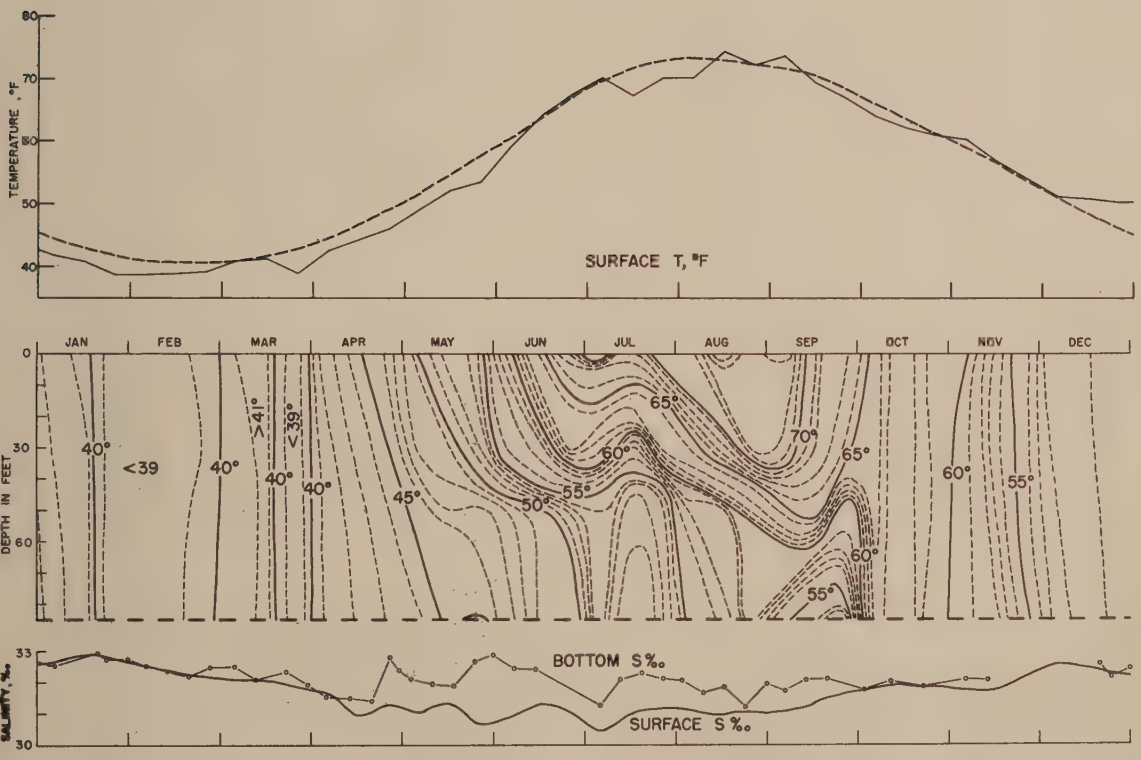

Figure 13. Five Fathom Bank Lightship, 1956. (Dashed line in upper diagram, mean for period 1947-1956)

Table 12

FIVE FATHOM BANK LIGHTSHIP 38°47.3'N. 74°34.6'W. Depth of water - 87 feet

1955

December

Day	Temperature °F				Salinity °/oo	
Depth	0'	30'	50'	85'	0'	85'
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15	47.2	47.6	47.7	47.8	32.24	32.31
16	46.8	46.9	46.9	46.9	.29	-
17	47.8	47.9	47.8	47.8	32.76	-
18	43.1	45.8	47.6	48.0	31.07	-
19	41.6	43.8	46.8	49.1	30.58	-
20	45.1	45.3	45.3	47.0	-	-
21	44.4	-	-	-	32.44	-
22	44.3	45.1	45.1	45.1	32.54	32.54
23	42.8	42.9	43.1	44.3	.20	-
24	42.7	43.0	43.1	45.5	.31	-
25	42.8	43.0	43.1	45.5	.71	-
26	42.8	42.9	43.0	45.4	.55	-
27	42.2	42.1	42.1	42.1	.22	-
28	43.3	43.3	43.3	43.3	.74	-
29	43.9	43.9	43.9	43.9	.76	32.76
30	43.3	43.9	44.1	44.8	.81	-
31	44.2	44.2	44.2	44.2	32.97	-

Table 12 (cont'd)

FIVE FATHOM BANK LIGHTSHIP 38°47.3'N. 74°34.6'W. Depth of water - 87 feet

1956

	January						February					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	85'	0'	85'	0'	30'	50'	85'	0'	85'
1	44.9	44.9	44.9	44.9	33.07	-	38.5	38.5	38.6	38.6	32.74	-
2	41.	-	-	-	32.87	-	38.8	38.9	38.9	38.9	.71	-
3	42.2	42.1	42.1	42.2	.76	-	38.0	38.0	38.0	38.5	.68	-
4	42.6	42.7	42.8	42.8	.83	-	39.2	38.9	38.8	38.7	.67	-
5	-	-	-	-	-	-	36.8	36.9	37.0	37.1	.50	-
6	40.3	40.3	40.4	41.8	.30	32.57	38.7	38.7	38.7	38.8	.50	32.54
7	40.1	40.1	40.2	41.8	32.29	-	39.0	39.0	39.0	39.0	.52	-
8	-	-	-	-	-	-	40.0	39.1	39.2	39.4	.56	-
9	-	-	-	-	-	-	39.0	39.0	39.0	39.0	.40	-
10	-	-	-	-	-	-	38.6	38.9	38.9	38.9	.29	-
11	-	-	-	-	-	-	39.1	39.1	39.1	39.1	.55	-
12	-	-	-	-	-	-	38.9	38.9	38.9	38.9	.34	-
13	-	-	-	-	-	-	39.1	39.0	39.0	39.0	.27	32.40
14	-	-	-	-	-	-	35.0	35.0	35.0	35.0	.41	-
15	-	-	-	-	-	-	39.5	39.5	39.5	39.5	.35	-
16	41.1	41.4	41.4	41.4	32.92	-	39.9	39.7	39.7	39.7	.48	-
17	-	-	-	-	-	-	39.3	39.5	39.5	39.5	.34	-
18	41.2	41.3	41.2	41.2	.91	-	40.	-	-	-	.26	-
19	39.4	40.9	40.9	40.9	.92	32.92	39.1	39.1	39.1	39.2	.26	-
20	42.	-	-	-	.98	32.98	39.4	39.1	39.1	39.1	.17	32.22
21	40.6	40.3	40.3	40.3	.82	-	39.0	39.0	39.0	39.1	32.02	-
22	40.0	40.0	40.0	40.0	.77	-	38.7	38.7	38.7	38.8	31.96	-
23	39.7	39.7	39.8	39.8	.86	32.78	38.1	38.1	38.2	38.5	32.01	-
24	38.6	38.6	38.6	38.6	.81	-	38.1	38.0	38.0	39.0	31.89	-
25	38.9	38.9	38.9	38.9	.84	-	38.5	38.4	38.4	38.4	32.37	-
26	38.9	38.9	38.9	38.9	.82	-	39.1	39.2	39.3	39.5	.36	-
27	37.9	37.9	38.0	38.0	.89	-	40.0	40.0	40.0	40.0	.47	32.51
28	37.3	37.3	37.4	37.4	.57	-	40.5	40.5	40.6	40.8	.36	-
29	37.6	37.6	37.6	37.6	.63	-	39.6	39.5	39.5	39.5	.29	-
30	38.3	38.3	38.3	38.4	.75	32.76						
31	38.3	38.3	38.3	38.4	32.81	-						
Mean	40.0	40.0	40.0	40.1	32.78	32.80	38.9	38.8	38.8	38.9	32.37	32.41

Table 12 (cont'd)

FIVE FATHOM BANK LIGHTSHIP 38°47.3'N. 74°34.6'W. Depth of water - 87 feet

1956

	March						April					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	85'	0'	85'	0'	30'	50'	85'	0'	85'
1	39.9	39.9	40.0	40.0	32.23	-	41.5	41.0	40.8	41.0	31.61	-
2	40.8	40.4	40.4	40.3	32.29	-	41.9	40.9	40.8	40.9	-	-
3	41.0	41.1	41.0	41.1	31.77	-	43.0	41.7	41.0	40.9	31.96	-
4	40.9	40.8	40.9	41.0	31.75	-	42.0	42.0	41.7	41.1	32.21	-
5	41.3	41.2	41.1	41.1	32.17	32.55	42.8	42.1	41.8	41.2	31.53	31.56
6	41.5	41.5	41.4	41.3	31.89	-	43.2	42.5	42.0	41.3	.90	-
7	41.0	40.8	40.8	40.8	32.02	-	-	-	-	-	-	-
8	41.2	41.2	41.1	41.0	.09	-	-	-	-	-	-	-
9	41.0	41.0	41.0	41.1	32.12	-	43.0	43.0	42.8	42.4	.20	-
10	41.1	40.7	40.7	40.7	31.92	-	42.7	42.3	42.2	42.2	.32	-
11	42.0	42.0	41.9	41.9	32.27	-	-	-	-	-	-	-
12	41.0	41.0	41.0	41.0	.14	32.14	-	-	-	-	-	-
13	41.5	41.5	41.5	41.5	.18	-	42.0	41.9	41.9	41.8	31.52	31.53
14	41.5	41.4	41.5	41.4	.01	-	42.7	42.0	41.9	41.9	30.90	-
15	41.1	41.1	41.0	41.1	.04	-	43.8	42.0	42.0	42.0	31.14	-
16	39.8	39.8	39.8	39.9	32.04	-	-	-	-	-	-	-
17	41.0	40.9	40.9	40.9	31.87	-	-	-	-	-	-	-
18	-	-	-	-	-	-	46.0	42.8	42.3	42.1	30.45	-
19	-	-	-	-	-	-	45.5	45.0	42.4	42.4	30.78	-
20	-	-	-	-	-	-	45.8	45.6	42.9	42.7	31.07	31.42
21	-	-	-	-	-	-	45.4	43.9	43.5	43.0	.17	-
22	39.8	38.5	38.5	38.5	31.99	32.36	45.2	44.2	43.0	43.0	.44	-
23	38.7	38.4	38.2	38.3	.79	-	45.7	45.6	45.0	43.1	.40	-
24	38.7	38.9	39.0	39.0	31.69	-	45.0	45.0	44.0	-	.61	-
25	38.8	38.8	38.8	38.8	32.30	-	45.0	44.9	44.8	-	.58	-
26	38.5	38.6	38.6	38.6	32.21	-	45.0	45.0	44.1	44.0	.52	32.84
27	39.0	38.8	38.8	38.8	31.68	-	45.3	45.1	44.7	44.0	31.51	-
28	38.8	38.9	38.9	38.9	.99	-	47.5	45.7	43.9	43.9	30.26	-
29	38.6	38.6	38.6	38.6	.96	31.96	46.8	44.0	43.9	43.8	31.19	32.44
30	38.5	38.5	38.3	38.3	.58	-	48.7	44.2	43.5	43.4	-	-
31	38.8	38.5	38.5	38.4	31.56	-						
Mean	40.2	40.1	40.1	40.1	31.98	32.25	44.4	43.4	42.8	42.7	31.33	31.95

Table 12 (cont'd)

FIVE FATHOM BANK LIGHTSHIP 38°47.3'N. 74°34.6'W. Depth of water - 87 feet

1956

	May						June					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	85'	0'	85'	0'	30'	50'	85'	0'	85'
1	44.0	43.8	39.9	38.6	31.05	-	56.8	55.1	46.2	45.5	30.81	-
2	49	-	-	-	30.81	-	57.5	56.5	47.6	45.7	.82	-
3	49	-	-	-	-	32.13	58.9	55.7	47.0	46.1	.82	-
4	49.8	48.8	43.3	43.1	31.00	-	59.3	55.6	47.9	47.0	.89	-
5	49.7	49.3	46.9	43.2	-	-	59.9	55.1	48.8	47.0	30.86	-
6	49.7	49.1	45.0	43.2	31.32	-	60.8	57.6	48.8	47.5	31.00	-
7	50.5	49.6	46.8	43.3	30.73	-	60.8	57.6	48.3	48.0	30.84	32.49
8	48.7	48.7	48.5	45.3	31.24	-	-	-	-	-	-	-
9	51.0	48.2	48.2	48.0	31.42	-	-	-	-	-	-	-
10	49.5	48.5	46.0	45.8	30.90	31.98	60.1	55.6	49.2	47.3	-	-
11	49.9	49.9	47.9	45.4	30.89	-	63.7	53.5	48.2	47.8	31.00	-
12	50.6	49.8	49.0	45.3	31.15	-	62.5	54.0	48.2	48.0	31.79	-
13	51.2	45.9	45.1	45.1	31.26	-	62.0	54.8	48.3	48.1	.22	-
14	54.0	46.1	45.0	44.8	31.09	-	63.7	62.3	-	-	.26	32.43
15	52.8	46.9	46.8	46.8	31.47	-	64.9	54.3	49.6	49.2	31.18	-
16	56.0	48.0	47.2	46.8	31.42	-	-	-	-	-	-	-
17	51.5	50.6	50.2	46.4	31.64	31.90	64.8	56.0	49.9	49.8	31.09	-
18	50.4	50.2	46.8	46.0	31.63	-	65.5	53.4	50.7	49.4	.24	-
19	51.9	50.0	47.1	45.3	31.60	-	64.2	63.8	51.8	50.5	.46	-
20	52.4	52.0	45.3	44.9	-	-	64.4	63.8	51.0	50.2	.53	-
21	54.0	52.0	47.7	44.8	30.55	-	63.9	53.8	50.0	50.0	.56	-
22	53.2	52.9	45.0	44.8	30.51	-	65.1	64.2	50.0	49.0	31.53	-
23	53.1	45.9	44.1	43.8	30.51	-	65.9	64.9	50.9	47.7	30.79	-
24	54.5	54.0	51.5	45.0	30.91	32.67	66.9	64.1	52.5	49.5	.90	-
25	53.9	53.9	48.7	44.0	30.70	-	67.6	64.9	51.7	50.3	.73	-
26	54.7	54.5	47.2	45.0	31.50	-	68.5	65.6	54.4	51.0	30.82	-
27	-	-	-	-	-	-	69.6	63.3	52.3	50.9	31.25	-
28	52.8	46.3	45.0	45.0	30.97	-	72	60.0	51.1	50.1	.19	-
29	52.5	52.2	46.7	45.8	30.87	-	69.0	66.2	51.7	49.5	31.36	-
30	52.9	51.9	46.7	45.3	30.83	-	67.2	64.2	51.6	49.1	30.52	-
31	53.4	51.1	45.7	45.2	30.61	32.89						
Mean	51.6	49.6	46.5	44.9	31.02	32.33	63.9	59.1	49.9	48.6	31.09	32.46

Table 12 (cont'd)

FIVE FATHOM BANK LIGHTSHIP 38°47.3'N. 74°34.6'W. Depth of water-87 feet

1956

Depth / Day	July Temperature °F 0'	30'	50'	85'	July Salinity °/oo 0'	85'	August Temperature °F 0'	30'	50'	85'	August Salinity °/oo 0'	85'
1	69.2	63.0	52.0	-	30.07	-	70.6	62.1	52.2	-	-	-
2	68.1	64.3	49.4	-	29.73	-	71.7	61.1	52.8	-	31.07	32.06
3	71.5	-	-	-	30.57	-	69.6	58.8	54.3	52.5	.09	-
4	72.3	67.0	58.0	-	30.83	-	70.3	60.2	53.7	-	.19	-
5	73.4	65.6	56.5	-	31.03	31.26	70.0	61.5	51.5	-	.03	-
6	69.8	62.2	57.0	54.5	30.55	-	69.8	69.4	56.4	52.5	31.10	-
7	71.0	57.3	54.4	-	.65	-	68.7	64.8	59.5	55.5	30.99	-
8	70.9	59.0	53.4	53.1	.31	-	70.0	69.6	59.6	57.3	31.26	-
9	-	-	-	-	-	-	71.3	70.7	69.6	56.9	.21	31.65
10	66.2	55.7	52.3	-	-	-	72.1	64.9	60.2	58.2	31.04	-
11	66.7	54.7	52.1	52.0	30.98	-	73.	61.0	58.8	-	30.77	-
12	67.6	54.4	52.3	51.9	-	32.12	73.1	69.1	58.3	55.0	.87	-
13	67.4	58.7	51.3	51.9	31.01	-	73.9	69.0	56.5	-	.82	-
14	62.0	52.8	50.0	-	.03	-	74.5	66.4	57.1	-	30.97	-
15	64.8	53.3	51.2	49.6	.20	-	74.	-	-	-	31.02	-
16	67.0	53.2	50.5	-	31.02	-	75.7	73.3	58.1	-	-	31.81
17	68.2	61.4	50.5	49.4	30.92	-	75.5	73.3	57.3	-	30.98	-
18	69.0	58.8	51.3	51.0	.91	-	76.3	72.7	57.2	-	.96	-
19	70.4	58.0	51.2	50.3	.98	32.30	74.9	66.8	50.3	-	30.91	-
20	71.0	65.3	51.0	-	30.98	-	74.6	59.0	50.2	-	31.06	-
21	68.8	65.0	52.0	-	31.14	-	-	-	-	-	-	-
22	69.5	62.8	53.5	-	.15	-	72.7	72.5	72.1	69.0	31.28	-
23	70.3	67.8	52.9	52.2	.12	-	71.9	70.9	68.1	64.0	30.95	31.23
24	69.0	59.8	52.7	-	.19	-	71.8	71.6	67.2	-	31.43	-
25	69.8	65.3	52.4	52.1	.14	-	71.7	71.7	67.9	56.0	30.91	-
26	72.0	60.8	51.8	51.4	.14	32.12	72.3	70.9	63.8	56.1	31.42	-
27	-	-	-	-	-	-	72.3	72.1	57.8	-	30.87	-
28	71.4	63.0	51.5	-	.02	-	72.6	71.5	57.2	52.0	.86	-
29	72.0	71.6	56.6	49.9	31.00	-	72.4	72.3	57.0	-	.87	-
30	70.5	63.2	52.4	51.0	.13	-	73.5	72.3	60.0	-	.83	31.94
31	70.5	56.3	52.8	51.8	31.14	-	74.3	72.4	56.2	-	30.73	-
Mean	69.3	60.7	52.6	51.5	30.89	31.95	72.5	68.1	58.7	53.0	31.02	31.74

Table 12 (cont'd)

FIVE FATHOM BANK LIGHTSHIP 38°47.3'N. 74°34.6'W. Depth of water - 87 feet

1956

	September						October					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	85'	0'	85'	0'	30'	50'	85'	0'	85'
1	74.0	73.3	59.0	51.0	30.82	-	64.5	64.9	64.8	64.8	31.73	-
2	75.0	68.9	57.7	-	.74	-	64.8	64.8	64.6	64.5	.82	31.74
3	75.0	68.3	63.2	54.0	.79	-	64.4	64.2	64.2	64.1	.83	-
4	74.1	72.6	62.2	55.0	30.94	-	65.6	65.2	65.2	64.6	.75	-
5	75.0	73.7	69.3	55.5	31.16	-	-	-	-	-	-	-
6	74.5	73.7	66.0	57.0	.27	31.72	64.1	63.9	63.8	63.8	.82	-
7	75.0	74.3	65.0	55.0	.03	-	64.3	64.2	64.0	64.0	.76	-
8	72.9	72.7	72.7	54.0	.25	-	63.4	63.4	63.4	63.4	.81	-
9	-	-	-	-	-	-	63.3	63.4	63.7	63.8	.89	-
10	69.0	68.9	69.2	69.0	.35	-	63.4	63.4	63.2	63.0	-	-
11	69.0	68.6	68.0	-	.24	-	62.5	62.4	62.4	62.4	.91	32.00
12	70.0	69.0	69.0	-	.24	-	62.6	62.1	62.1	62.1	.84	-
13	69.5	67.7	66.9	-	.18	32.07	62.2	62.2	62.3	62.3	.90	-
14	70.0	67.7	61.6	-	.30	-	62.7	62.7	62.6	62.6	.91	-
15	70.0	69.4	64.3	50.6	.01	-	62.3	62.1	62.1	62.1	31.92	-
16	70.5	70.4	67.4	-	.24	-	62.9	62.1	62.1	62.0	32.15	-
17	70.5	69.4	66.3	-	.30	-	62.3	62.2	62.1	62.0	31.96	-
18	69.3	69.3	66.4	-	.39	-	-	-	-	-	-	-
19	69.6	69.5	60.7	56.5	.46	-	62.2	62.2	62.1	62.0	.97	-
20	68.5	68.3	63.0	56.5	.27	32.10	62.1	62.0	62.0	62.0	.85	-
21	67.2	67.2	66.8	53.5	.46	-	61.7	61.7	61.6	61.4	.82	-
22	66.6	66.3	55.3	-	.56	-	-	-	-	-	.87	-
23	66.7	64.7	55.4	-	.12	-	-	-	-	-	-	-
24	67.3	67.7	61.6	-	31.00	-	-	-	-	-	-	-
25	68.0	67.4	60.0	51.1	30.97	-	-	-	-	-	-	-
26							-	-	-	-	-	-
27							60.5	60.3	60.3	60.2	.79	31.83
28												
29												
30												
31												
Mean	70.7	69.5	64.0	55.2	31.17	31.96	63.1	63.0	62.9	62.9	31.86	31.86

Table 12 (cont'd)

FIVE FATHOM BANK LIGHTSHIP 38°47.3'N. 74°34.6'W. Depth of water - 87 feet

1956

	November						December					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	85'	0'	85'	0'	30'	50'	85'	0'	85'
1	60.3	60.2	60.2	60.0	-	32.09	52.2	52.2	52.2	52.2	32.49	-
2	63.9	60.5	60.2	60.1	31.72	-	52.3	52.3	52.3	52.9	.80	-
3	-	-	-	-	-	-	52.3	52.3	52.5	-	.69	-
4	60.2	60.2	60.2	60.1	31.74	-	50.8	52.8	53.2	53.6	.22	-
5	60.1	60.1	59.9	59.9	.70	-	-	-	-	-	-	-
6	60.4	59.9	59.9	59.7	.70	-	51.5	51.4	51.1	51.5	.64	-
7	59.2	58.9	58.9	58.8	.71	-	50.2	50.6	51.7	51.9	.57	-
8	59.8	59.1	59.0	59.0	31.70	32.06	-	-	-	-	-	-
9	-	-	-	-	-	-	51.5	51.6	52.0	52.9	.49	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	51.0	51.0	51.9	51.9	.66	-
12	58.1	57.9	57.9	58.1	32.12	-	52.3	52.3	52.6	52.9	.84	-
13	-	-	-	-	-	-	52.8	52.9	53.6	53.6	.17	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	57.3	56.6	57.9	58.6	31.54	-	49.9	49.9	49.9	50.5	.20	-
17	56.7	57.1	57.1	59.8	.54	-	50.4	50.2	50.2	51.1	.36	-
18	-	-	-	-	-	-	50.8	50.8	50.9	51.1	.38	-
19	56.0	56.0	56.1	56.0	.64	-	50.9	50.9	50.9	50.7	.69	-
20	-	-	-	-	-	-	51.	-	-	-	.51	32.59
21	56.1	56.2	56.5	56.5	31.74	-	51.0	51.0	51.5	51.9	.56	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	56.1	56.1	56.1	57.9	32.34	-	51.0	51.2	51.2	51.5	.15	-
24	54.4	54.6	54.7	55.7	.16	-	51.3	51.3	51.3	51.3	-	32.17
25	54.6	54.1	54.3	54.5	31.95	-	51.1	51.0	50.9	51.2	.46	-
26	53.2	53.9	54.3	54.7	32.00	-	51.3	51.3	51.4	51.6	.34	-
27	52.8	53.2	53.2	54.6	.10	-	50.7	50.7	50.6	50.7	.13	-
28	53.	-	-	-	.16	-	49.9	49.8	49.8	49.8	-	-
29	-	-	-	-	-	-	49.7	49.7	49.7	49.7	.17	-
30	52.7	52.8	52.8	53.0	32.38	-	49.8	49.8	49.7	49.8	.31	-
31							49.2	49.2	49.5	49.8	.18	32.43
Mean	57.1	57.1	57.2	57.6	31.89	(32.08)	51.0	51.1	51.3	51.5	32.44	(32.40)

Winter Quarter Lightship

Monthly mean surface temperatures exhibited no significant departure from the mean for the periods 1879 -99 and 1925 -40 (Bumpus, 1957) although the annual mean for 1956 (56.3°F) was higher than the period of record annual means (1879 -99; 55.4°F; 1925 -40, 55.9°F).

Minimum temperatures throughout the water column occurred during the latter part of January and first-third of February at approximately 40°F. The thermocline commenced development in April. Maximum temperatures at the surface (76°F) were reached during the last third of August. Maximum temperatures may have been missed at the bottom during September. By the first-third of October the autumn overturn had commenced whereupon the temperature declined at a regular rate throughout the water column. The year ended with the temperatures about 7°F warmer than at the end of 1955. The intrusion of off-shore water during mid-July chilled the whole column of water several degrees. This is apparent in the temperature time profile, as it was also at Five Fathom Lightship.

Surface salinities remained near 32.5°/oo during the first 2 2/3 months, dropped to 31°/oo in early April, recovered to 32°/oo during May, gradually declined to 31°/oo in August and slowly recovered to 32.5°/oo at year end. Bottom salinities tended to remain fairly close to the surface salinities during the first quarter of the year, became higher by 1 to 1½ parts per thousand while the thermocline was developed then returned to only slightly higher than surface values during the last quarter of the year.

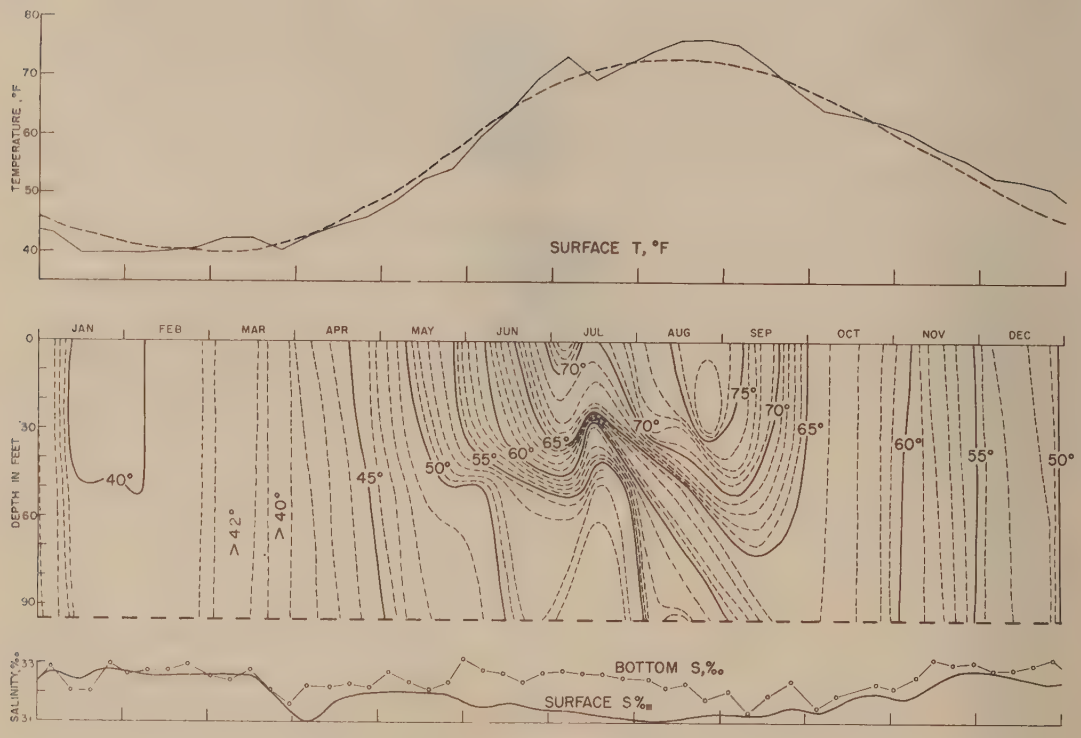

Figure 14. Winter Quarter Lightship, 1956. (Dashed line in upper diagram, mean for period 1925-1940)

Table 13

WINTER QUARTER LIGHTSHIP 37°55'05"N. 74°56'04"W. Depth of water - 96 feet

1955

December

Depth / Day	Temperature °F 0'	30'	50'	96'	Salinity °/oo 0'	96'
1	53.6	53.6	53.6	53.6	32.58	32.41
2	53.0	53.0	53.0	53.0	.26	-
3	52.5	52.5	52.9	52.9	.28	-
4	52.4	52.6	52.8	52.8	.22	-
5	52.1	52.1	52.1	52.6	.10	-
6	52.2	52.3	52.3	52.3	.30	-
7	51.9	51.9	51.9	51.8	.28	-
8	52.1	52.2	52.0	51.9	.48	32.62
9	51.2	51.2	51.2	51.1	.28	-
10	50.3	50.3	50.3	50.3	.16	-
11	49.2	49.4	49.2	49.3	.90	-
12	48.8	49.3	49.6	50.6	.20	-
13	48.7	48.8	49.0	50.6	32.14	-
14	46.4	46.9	46.8	48.2	31.42	-
15	48.4	48.7	49.0	49.0	32.12	32.35
16	48.5	48.9	48.7	48.5	32.32	-
17	46.0	47.3	48.2	48.8	31.82	-
18	47.8	47.9	48.4	49.0	32.39	-
19	47.2	47.2	48.5	49.1	.30	-
20	46.0	46.1	45.9	45.8	.06	-
21	45.1	45.1	45.1	45.0	.04	-
22	45.2	45.2	45.2	45.7	.28	32.38
23	44.8	44.8	44.9	46.1	.26	-
24	44.8	44.8	44.9	-	.22	-
25	45.5	-	-	-	.16	-
26	44.6	44.6	44.6	46.7	.12	-
27	44.3	44.4	44.4	44.5	32.22	-
28	42.7	42.7	42.7	42.7	31.72	-
29	43.3	43.1	43.1	-	32.04	32.26
30	41.1	43.2	45.0	45.0	31.44	-
31	44.2	44.3	44.8	44.9	32.50	-
Mean	47.9	48.1	48.3	49.0	32.18	32.40

Table 13 (cont'd)

WINTER QUARTER LIGHTSHIP 37°55'05"N. 74°56'04"W. Depth of water - 96 feet

1956

Depth / Day	January Temperature °F 0'	30'	50'	96'	January Salinity °/oo 0'	96'	February Temperature °F 0'	30'	50'	96'	February Salinity °/oo 0'	96'
1	41.1	42.0	44.2	45.2	31.50	-	39.2	39.3	39.6	40.2	32.67	-
2	43.8	43.8	43.8	43.8	32.46	-	39.7	39.4	39.3	39.3	.65	32.65
3	43.1	43.0	43.0	43.0	.45	-	39.8	39.6	39.8	40.1	.64	-
4	43.1	43.1	43.4	43.4	.35	-	39.8	39.7	39.8	39.8	.69	-
5	43.3	43.2	43.1	43.1	32.86	32.87	39.6	39.5	39.7	39.7	.59	-
6	44.7	44.8	44.7	44.7	33.14	-	39.9	39.7	39.7	39.7	.68	-
7	44.9	44.9	44.9	44.9	.15	-	39.5	39.5	39.5	40.0	.52	-
8	42.3	42.4	42.4	42.4	.07	-	40.0	39.8	40.3	40.5	.57	-
9	43.1	43.0	43.1	43.1	33.06	-	39.9	39.7	40.3	40.3	.43	32.72
10	42.3	42.3	42.2	42.2	32.87	-	40.4	40.1	40.0	40.0	.55	-
11	41.5	41.3	41.3	41.3	.48	-	39.7	39.7	39.7	39.5	.52	-
12	40.0	40.0	40.0	40.0	32.08	32.08	39.9	39.8	39.8	39.8	.64	-
13	38.6	38.4	38.5	38.5	31.91	-	39.5	40.0	40.0	40.0	.31	-
14	39.2	39.2	39.3	39.3	32.34	-	39.2	39.7	39.7	39.9	.23	-
15	39.0	39.1	39.3	39.7	.31	-	39.1	39.4	39.9	40.2	.09	-
16	38.0	39.3	40.4	41.0	.06	-	40.0	-	-	-	.31	32.77
17	38.9	39.0	39.0	40.9	.28	-	40.3	40.2	40.0	40.0	.68	-
18	39.9	40.0	40.0	40.0	32.86	-	40.7	40.5	40.5	40.5	.72	-
19	40.7	40.6	40.6	40.6	33.05	32.04	41.3	41.2	41.1	41.0	.86	-
20	41.4	41.3	41.3	41.3	.08	-	41.	-	-	-	.78	-
21	41.2	41.1	41.1	41.1	.12	-	41.0	40.9	40.9	40.9	-	-
22	41.0	40.9	40.9	40.9	33.20	-	40.0	40.0	40.2	40.2	-	-
23	39.2	40.8	41.0	41.1	32.60	-	39.4	39.5	40.3	40.8	.38	32.99
24	39.9	39.9	39.9	39.9	.67	-	39.2	39.2	39.4	40.3	-	-
25	39.8	39.8	39.9	40.9	.71	-	40.2	40.1	40.0	40.0	.48	-
26	39.8	39.9	39.7	-	32.75	32.99	40.5	40.5	40.2	40.2	.45	-
27	-	-	-	-	33.07	-	41.5	41.7	41.7	41.6	.70	-
28	40.1	40.0	40.1	40.1	33.07	-	42.8	42.9	42.7	42.7	.85	-
29	38.8	38.6	39.8	40.6	32.56	-	41.1	41.1	41.0	41.0	32.45	-
30	38.7	38.6	40.2	40.5	.66	-						
31	39.0	39.0	39.1	39.7	32.69	-						
Mean	40.9	41.0	41.2	41.5	32.66	32.50	40.1	40.1	40.2	40.3	32.56	32.78

Table 13 (cont'd)

WINTER QUARTER LIGHTSHIP 37°55'05"N. 74°56'04"W. Depth of water - 96 feet

1956

	March						April					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	96'	0'	96'	0'	30'	50'	96'	0'	96'
1	40.7	40.4	40.4	40.2	32.47	32.54	41.0	40.2	40.1	40.4	30.95	-
2	41.5	41.5	41.5	41.5	.65	-	41.7	41.1	40.3	40.5	.99	-
3	42.0	42.0	42.4	42.4	.72	-	42.1	41.7	40.9	40.8	.77	-
4	42.1	42.1	42.1	42.2	.76	-	42.9	41.6	41.1	-	.90	-
5	42.5	42.5	42.5	42.6	.73	-	43.3	42.8	41.3	-	.47	32.21
6	42.8	42.8	43.0	43.7	.62	-	44.2	42.9	41.2	-	.54	-
7	42.5	42.2	42.1	42.1	.41	-	43.9	42.7	41.3	41.3	30.71	-
8	42.4	42.4	42.4	42.0	.42	32.42	43.2	43.1	43.0	42.3	31.85	-
9	42.3	42.2	42.2	42.2	.42	-	42.7	42.3	42.2	41.7	.47	-
10	44.2	43.8	44.0	44.0	.75	-	43.6	42.7	42.7	42.1	.28	-
11	44.0	43.9	43.8	43.8	.82	-	42.6	42.5	42.4	42.0	31.54	-
12	43.0	43.0	43.0	42.5	.57	-	-	-	-	-	-	-
13	42.9	42.9	43.0	42.9	.61	-	42.9	42.3	42.2	42.2	32.22	32.16
14	43.0	-	-	-	.58	-	43.1	42.7	42.6	42.3	.10	-
15	42.7	42.7	42.7	42.5	.75	32.76	43.3	43.2	42.3	42.1	.11	-
16	43.0	43.0	43.0	-	.82	-	45.1	44.9	44.1	42.8	32.23	-
17	42.1	42.0	42.0	42.0	.66	-	44.4	43.7	43.5	43.5	31.42	-
18	41.5	41.4	41.4	41.4	.35	-	47.1	44.9	43.9	-	.05	-
19	41.2	41.0	41.0	41.0	.56	-	45.9	45.4	44.9	44.1	.14	-
20	40.1	40.2	40.1	40.0	.25	-	45.6	44.9	44.0	43.9	.44	32.30
21	40.0	40.0	40.0	39.9	.17	-	45.1	45.0	44.7	43.9	.72	-
22	40.1	39.6	39.7	39.7	32.00	32.05	45.1	44.9	44.7	44.1	.89	-
23	40.8	40.0	39.9	40.0	31.95	-	45.7	44.6	44.1	43.9	.56	-
24	40.0	40.0	40.0	40.0	32.08	-	45.2	45.3	44.6	44.3	31.76	-
25	40.2	40.2	40.1	40.0	31.66	-	45.0	44.9	44.9	44.8	32.11	-
26	40.0	39.8	39.9	40.0	31.46	-	45.1	44.9	44.9	44.8	.70	-
27	41.1	40.8	40.5	40.4	31.78	-	45.6	45.1	45.0	44.9	32.20	32.18
28	41.2	41.0	41.0	40.3	32.02	-	46.2	45.8	45.1	44.8	31.73	-
29	40.4	40.0	40.0	40.4	31.47	31.60	47.7	46.3	44.0	43.9	31.83	-
30	40.3	40.0	40.0	39.9	31.61	-	47.4	45.9	44.1	44.1	32.22	-
31	40.8	40.3	40.2	40.3	31.47	-						
Mean	41.7	41.5	41.5	41.4	32.31	32.27	44.4	43.7	43.1	43.0	31.55	32.21

Table 13 (cont'd)

WINTER QUARTER LIGHTSHIP 37°55'05"N. 74°56'04"W. Depth of water - 96 feet May
75 feet June

1956

	May						June					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	96'	0'	96'	0'	30'	50'	75'	0'	75'
1	47.8	47.7	45.6	44.4	-	-	57.9	55.8	48.5	47.9	-	-
2	48.2	47.9	46.2	44.7	32.19	-	58.6	57.9	50.7	48.7	30.29	-
3	48.7	47.6	45.9	44.9	-	-	58.5	56.0	49.4	48.1	31.50	-
4	49.	-	46.9	44.9	32.16	32.72	60.3	57.2	49.7	47.8	.56	-
5	48.4	47.9	46.4	45.3	32.08	-	60.1	57.2	49.7	48.1	.64	-
6	49.0	48.5	47.5	45.1	31.90	-	61.0	58.3	51.0	48.4	-	-
7	49.5	48.2	-	-	32.03	-	57.7	54.6	46.2	45.4	.83	32.77
8	47.8	47.8	47.8	-	31.96	-	-	-	-	-	-	-
9	49.2	48.2	47.9	47.1	31.74	-	61.5	61.4	49.4	49.1	31.84	-
10	48.4	48.4	47.8	47.5	32.38	-	61.8	59.8	50.9	50.6	32.09	-
11	49.2	49.2	48.7	48.2	.01	32.37	62.3	61.6	54.9	50.2	.01	-
12	50.8	49.4	49.4	48.2	.40	-	61.5	60.6	51.0	49.0	32.00	-
13	50.2	48.2	48.1	48.1	32.23	-	64.5	61.3	51.7	49.8	31.83	-
14	53.4	49.1	48.5	48.0	31.80	-	68.0	62.3	53.8	50.2	30.72	32.66
15	52.5	51.1	48.4	48.5	32.25	-	-	-	-	-	-	-
16	54.5	49.0	48.7	48.5	31.85	-	63.8	52.6	48.8	48.2	30.88	-
17	53.0	50.2	49.5	48.9	32.16	-	-	-	-	-	-	-
18	53.5	52.7	51.9	49.0	31.54	32.12	-	-	-	-	-	-
19	54.7	51.0	49.0	47.3	31.64	-	64.1	64.1	54.9	54.5	32.19	-
20	52.5	52.1	50.8	46.6	32.33	-	63.9	63.5	55.7	54.2	32.10	-
21	52.7	52.0	50.7	47.6	32.40	-	64.5	64.2	54.4	52.5	31.98	32.39
22	54.0	53.0	51.9	47.5	31.74	-	66.3	65.7	52.8	52.0	.28	-
23	54.5	53.7	47.5	47.1	.80	-	68.7	65.6	53.0	52.1	.22	-
24	53.5	53.2	52.3	48.1	.84	-	68.0	65.6	57.0	52.9	.26	-
25	54.0	53.5	51.0	48.8	.74	32.35	71.0	61.0	53.0	52.6	.36	-
26	54.2	53.7	48.7	48.3	.77	-	71.3	61.0	54.0	52.5	.63	-
27	54.2	54.0	47.6	47.1	31.84	-	71.5	62.6	52.9	51.3	.37	-
28	54.0	51.1	48.0	48.1	32.20	-	73.5	65.3	55.0	51.9	.28	32.70
29	54.3	53.9	52.9	49.2	31.92	-	70.6	63.2	55.5	52.0	.71	-
30	54.3	54.0	52.1	48.5	32.12	-	70.1	68.5	52.8	52.5	-	-
31	56.8	55.3	48.6	47.8	31.83	33.16						
Mean	51.8	50.7	48.9	47.3	32.00	32.54	64.7	61.0	52.2	50.5	31.55	32.63

Table 13 (cont'd)

WINTER QUARTER LIGHTSHIP 37°55'05"N. 74°56'04"W. Depth of water - 75 feet

1956

	July						August					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	75'	0'	75'	0'	30'	50'	75'	0'	75'
1	72.3	69.2	57.2	51.4	30.83	-	73.5	-	-	-	31.27	-
2	72.1	67.3	52.1	51.7	31.72	-	75.9	75.7	64.2	57.2	.28	-
3	73.9	70.8	67.0	52.1	.54	-	-	-	-	-	-	-
4	73.9	70.3	59.1	52.5	.51	-	75.3	75.1	59.0	56.2	.25	-
5	74.8	69.0	54.8	52.7	.55	32.76	73.4	70.1	56.1	53.9	.00	32.47
6	74.7	68.9	54.8	52.5	.34	-	72.4	71.4	59.9	55.5	.19	-
7	73.6	65.2	53.9	53.8	.34	-	73.6	66.4	62.4	62.3	31.09	-
8	73.2	60.9	54.1	53.9	.26	-	72.5	-	-	-	30.93	-
9	70.3	69.1	52.9	52.5	.54	-	74.8	73.8	66.2	58.0	.72	-
10	-	-	-	-	-	-	75.8	72.6	67.9	58.1	30.70	-
11	67.3	60.9	52.6	51.5	.58	-	75.4	68.3	62.5	56.8	31.11	32.20
12	68.7	54.3	51.0	51.0	.28	32.68	75.8	71.4	64.3	56.5	30.87	-
13	68.1	56.1	51.1	51.0	.75	-	77.4	72.8	60.2	56.4	.90	-
14	67.9	58.2	51.2	50.9	.84	-	75.5	74.9	67.6	56.4	.92	-
15	67.7	64.0	50.9	49.0	.38	-	76.4	68.4	60.0	57.1	30.87	-
16	70.9	57.5	51.7	50.9	.11	-	77.2	71.3	62.8	56.8	31.14	-
17	70.1	59.8	51.3	51.0	31.48	-	75.	-	-	-	.22	-
18	70.5	58.9	51.9	51.0	30.65	-	80.3	76.2	66.4	56.3	.28	32.31
19	72.1	54.2	51.6	51.1	.62	32.67	72.5	-	-	-	.34	-
20	70.	-	-	-	.95	-	73.	-	-	-	.18	-
21	71.2	67.1	52.3	51.9	30.96	-	-	-	-	-	-	-
22	73.1	63.9	54.4	52.1	31.06	-	73.	-	-	-	.26	-
23	71.2	70.0	50.7	50.2	.07	-	72.5	-	-	-	.09	-
24	70.6	69.9	52.0	50.0	.14	-	77.	-	-	-	.18	-
25	71.8	70.6	63.5	52.0	.27	-	74.	-	-	-	.57	31.79
26	72.2	70.2	63.0	52.2	.18	32.52	74.	-	-	-	.20	-
27	72.8	56.1	52.8	52.2	.26	-	79.7	-	-	-	.27	-
28	72.	-	-	-	.36	-	75.5	-	-	-	.37	-
29	72.4	56.5	52.9	51.0	.40	-	77.9	76.8	69.6	58.6	.49	-
30	70.1	68.8	52.6	51.0	.16	-	78.3	78.1	71.5	57.8	-	-
31	72.7	65.2	53.1	51.7	.24	-	80.4	77.6	66.6	58.8	-	-
Mean	71.4	64.0	54.2	51.6	31.28	32.66	75.5	73.0	64.0	57.2	31.14	32.19

Table 13 (cont'd)

WINTER QUARTER LIGHTSHIP 37°55'05"N. 74°56'04"W. Depth of water - September 75 ft
October 95 ft.

1956

	September						October					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	75'	0'	75'	0'	30'	50'	95'	0'	95'
1	75.5	-	-	-	-	-	64.2	64.2	64.1	63.8	31.24	-
2	77.	-	-	-	31.35	-	64.2	64.1	64.0	64.1	.22	-
3	76.5	-	-	-	.36	32.06	65.2	64.9	64.7	64.5	.26	-
4	75.5	-	-	-	.28	-	65.1	65.1	65.1	64.2	.32	31.51
5	77.5	-	-	-	.30	-	65.1	65.1	65.1	64.5	.46	-
6	78.	-	-	-	.24	-	65.0	65.1	65.0	65.0	.39	-
7	76.	-	-	-	31.25	-	64.6	64.7	64.7	64.5	.36	-
8	-	-	-	-	-	-	64.3	64.3	64.2	64.2	.45	-
9	72.	-	-	-	31.16	-	60.2	60.2	60.1	60.1	.54	-
10	71.	-	-	-	.28	31.33	64.7	64.7	64.8	64.9	.55	-
11	71.	-	-	-	31.27	-	64.1	64.1	64.1	64.1	.56	31.93
12	71.	-	-	-	30.89	-	63.2	63.6	63.7	63.7	.84	-
13	72.	-	-	-	31.18	-	63.1	63.1	63.1	63.2	.84	-
14	72.	-	-	-	31.23	-	63.1	63.1	63.2	63.2	.93	-
15	-	-	-	-	-	-	63.6	63.1	63.0	63.0	.79	-
16	72.	-	-	-	31.27	-	63.4	63.4	63.2	62.3	.68	-
17	73.	-	-	-	.34	31.91	63.7	63.8	63.8	62.8	.75	-
18	72.	-	-	-	.25	-	-	-	-	-	-	-
19	72.	-	-	-	31.26	-	63.4	63.5	63.5	63.6	31.94	-
20	-	-	-	-	-	-	63.0	63.0	63.0	62.9	32.16	-
21	70.	-	-	-	31.46	-	63.1	63.1	63.1	62.9	.15	-
22	70.	-	-	-	.44	-	63.0	63.0	63.1	63.1	32.20	-
23	69.	-	-	-	.56	-	63.3	63.1	62.9	62.9	31.97	-
24	70.	-	-	-	31.70	-	62.7	62.9	62.9	62.8	32.28	-
25	69.	-	-	-	-	32.39	61.7	61.8	61.9	61.9	.33	32.33
26	68.	-	-	-	31.59	-	61.9	61.9	61.9	61.9	.09	-
27	-	-	-	-	-	-	61.2	61.3	61.3	61.3	.11	-
28	64.	-	-	-	31.58	-	60.9	61.1	61.1	61.2	32.20	-
29	65.1	65.1	65.0	64.9	31.36	-	61.1	61.2	61.5	61.5	31.99	-
30	64.6	64.3	64.3	64.3	31.33	-	61.8	61.9	61.8	-	.93	-
31							62.5	-	-	-	31.65	-
Mean	71.7	-	-	-	31.33	31.92	63.2	63.2	63.2	63.1	31.77	31.92

Table 13 (cont'd)

WINTER QUARTER LIGHTSHIP 37°55'05"N. 74°56'04"W. Depth of water - 95 feet

1956

	November						December					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	95'	0'	95'	0'	30'	50'	95'	0'	95'
1	61.8	61.2	61.0	60.4	31.52	32.18	53.0	53.2	53.6	53.8	32.60	-
2	61.9	60.8	60.7	60.2	.63	-	53.0	53.2	53.4	54.0	.68	-
3	62.	-	-	-	.84	-	53.3	53.3	53.5	53.8	32.89	-
4	61.5	-	-	-	.84	-	53.7	53.7	53.7	54.0	33.10	-
5	60.9	60.8	60.9	60.9	31.76	-	53.6	53.7	53.8	54.0	32.94	-
6	59.7	59.8	59.9	60.0	32.01	-	52.5	53.2	53.2	53.4	.60	32.80
7	60.1	59.9	59.8	59.9	.06	-	52.7	52.9	53.1	53.9	.47	-
8	59.6	59.9	59.5	59.6	32.00	-	53.2	53.8	54.0	54.6	.75	-
9	59.0	59.1	59.2	59.6	31.93	32.57	52.8	53.0	53.8	54.2	.49	-
10	58.5	58.3	58.3	58.9	.93	-	52.0	52.1	52.5	52.5	.55	-
11	57.9	58.1	58.5	59.0	31.64	-	52.0	52.0	52.1	52.1	.51	-
12	58.2	58.2	58.3	58.9	32.13	-	52.0	52.0	52.0	52.1	.60	-
13	57.9	58.0	58.1	59.1	.28	-	53.0	53.0	53.1	53.2	.90	32.82
14	57.9	57.9	58.1	58.4	.24	-	52.4	52.5	52.7	52.7	.60	-
15	58.1	58.1	58.9	59.1	.51	33.19	52.2	52.2	52.4	52.5	.42	-
16	58.1	58.1	58.8	60.3	.19	-	52.0	52.9	53.0	53.2	.30	-
17	58.0	58.1	58.1	59.2	.43	-	53.0	53.0	53.1	53.2	32.85	-
18	57.8	57.9	58.1	58.2	.68	-	51.2	52.5	53.3	53.7	31.81	-
19	57.2	57.2	57.3	57.5	.22	-	52.3	53.0	53.0	53.1	32.92	-
20	57.3	57.2	57.4	57.6	.84	-	51.7	53.0	53.1	53.1	.27	32.98
21	57.3	57.4	57.9	58.0	.85	-	51.2	51.5	52.2	53.3	.15	-
22	57.5	57.3	57.5	57.8	.60	33.00	52.	-	52.8	52.8	.14	-
23	56.4	56.9	57.1	57.4	.87	-	51.5	52.6	52.7	53.0	.04	-
24	56.3	56.6	56.8	56.9	.89	-	52.2	52.9	53.0	53.0	.34	-
25	55.8	55.9	55.9	56.0	.80	-	52.0	52.1	52.2	53.0	.73	-
26	55.7	55.6	55.7	56.2	.62	-	51.0	51.1	51.8	52.5	.51	-
27	55.8	55.7	55.9	56.0	.76	-	50.8	50.7	51.0	52.9	.45	33.18
28	54.4	54.9	55.1	56.0	.67	-	50.0	50.2	52.3	52.8	.31	-
29	54.3	54.9	54.9	55.0	.78	33.09	50.5	50.7	52.1	52.3	.38	-
30	54.0	54.0	54.1	54.2	.85	-	49.8	50.1	50.0	-	.51	-
31							50.0	50.0	50.0	-	32.37	-
Mean	58.0	57.8	57.9	58.2	32.31	32.81	52.0	52.3	52.7	53.2	32.52	32.94

Chesapeake Lightship

Winter surface temperatures tended to be several degrees lower than the 1947-1956 mean. The spring warming lagged behind the mean. Summer surface temperatures tended higher than the mean except for a depression in mid-July. Autumnal cooling preceeded the mean except for a sudden retardation of cooling in December.

Minimum temperatures, less than 38°F, occurred during the last-third of January. During February and March surface temperatures were usually only a fraction of a degree warmer than the bottom temperatures at the surface of greater than 77°F were reached in mid-August. Maximum temperatures at the bottom of greater than 72°F were reached in mid-September at the commencement of the autumnal overturn.

Surface salinity ranged from 32°/oo at the beginning of the year to less than 26°/oo in late June followed by an irregular recovery to 32°/oo at year end. Bottom salinities tended to be several parts per thousand more saline during most of the year, but during the period of marked turnover in the water column surface and bottom salinities were nearly identical.

The depression in surface temperature in mid-July resulted from an intrusion of cold saline water from offshore which influenced the whole water column. The intrusion appears to follow a period of preponderant strong southerly winds. The winds observed at the lightship were predominantly strong southerly for the first two thirds of July and averaged to very light westerlies during the third-third when the deeper water became much warmer. Inasmuch as the mean surface pressure map for the month of July 1956 is almost an exact replica of the long-time normal it may be that the condition which produced the encroachment of cold water is a normal phenomenon. We have no previous data on this subject other than the daily surface water temperature records for previous years. The one-third monthly means for previous years indicate a tendency for a surface water temperature depression at some time during the summer. This was particularly marked in 1954 when the usual maximum surface temperatures were not reached.

Comparison of the day to day fluctuations in the temperature at all depths during the summer of 1956 with the wind systems indicated, in general, that colder temperatures at the middle and lower depths are associated with southwesterly winds, while warming occurs with north easterly or easterly winds. Presumably the strong southwesterly and westerly winds move the surface water offshore and allow the encroachment of colder more saline water from offshore. Northeasterly and easterly winds on the other hand press the coastal water against the shore and force the deeper water off shore. This is similar to the phenomenon reported by Longard and Banks (1952) at Sambro Lightship but requires less wind for a shorter duration. Here we have only a two layered system whereas they had a three layered system.

The influence of other than purely local winds is apparent as a better correlation between water movements and wind is obtained from observing the position of fronts on the sequence of daily weather maps than from the purely local observations on the lightship. This intrusion of offshore water is apparent at Winter Quarter and Five Fathom Bank Lightships to a lesser degree, but at the same times as at Chesapeake Lightship, indicating that this intrusion and regression occurred all along this stretch of the coast.

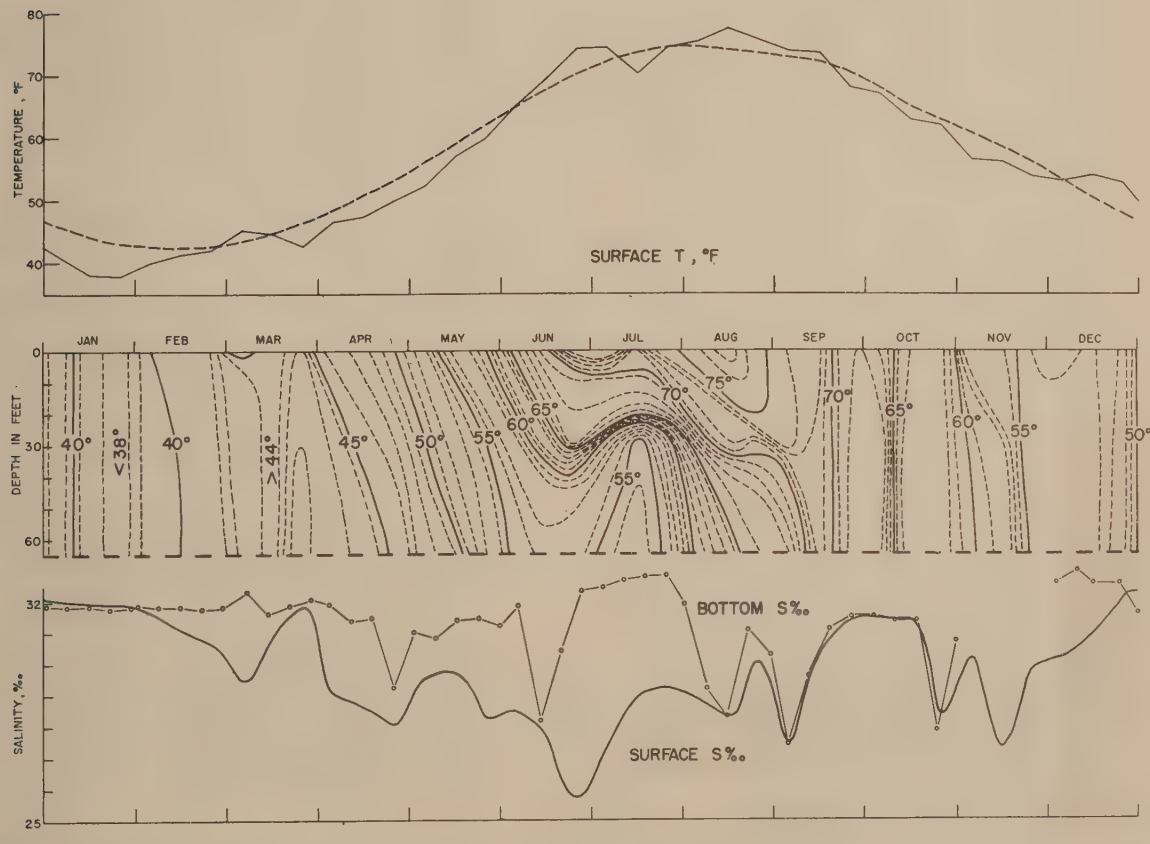

Figure 15. Chesapeake Lightship, 1956. (Dashed line in upper diagram, mean for period 1947-1956)

Table 14

CHESAPEAKE LIGHTSHIP 36°58'07"N. 75°42'02"W. Depth of water - 65 feet

1955

	November						December					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	65'	0'	65'	0'	30'	50'	65'	0'	65'
1							51.1	51.9	52.0	52.1	30.82	-
2							50.7	52.3	52.7	52.8	30.75	-
3							51.1	51.9	52.7	52.8	29.70	-
4							51.7	52.4	52.8	52.8	28.69	-
5							52.2	52.7	52.9	53.0	29.65	32.19
6							51.9	52.2	53.0	53.0	31.59	-
7							51.8	51.9	51.9	51.9	32.21	-
8							50.9	51.3	51.3	51.3	.32	-
9							50.1	51.0	51.1	51.1	.53	-
10							50.1	50.1	50.1	50.2	.22	-
11							48.8	49.5	49.7	49.7	.18	-
12							48.8	48.9	48.9	48.9	.36	32.26
13							-	-	-	-	-	-
14							48.3	48.2	48.1	48.1	32.16	32.16
15							48.8	48.5	48.5	48.4	.21	-
16							47.8	47.7	47.6	47.6	32.19	-
17							43.4	47.7	48.0	48.1	29.77	-
18							47.0	46.8	46.8	46.8	-	-
19							46.9	46.8	46.8	46.8	32.28	-
20							46.7	46.8	46.8	46.6	.28	-
21							45.0	45.0	45.0	44.9	32.17	32.18
22							44.9	44.1	44.1	44.1	33.22	-
23							45.5	44.9	44.9	44.9	32.22	-
24							44.6	44.2	44.1	44.1	.18	-
25							44.9	44.9	45.0	45.0	.01	-
26							44.9	44.8	44.8	44.7	.28	-
27							43.7	43.3	43.3	43.4	.18	-
28	54.0	55.0	55.0	55.0	29.86	32.18	43.0	43.0	43.0	43.0	.19	32.17
29	54.1	54.1	54.1	54.1	32.16	-	43.2	43.1	43.1	43.1	.23	-
30	51.9	52.1	52.4	53.1	30.65	-	43.0	43.0	43.1	43.1	.20	-
31							42.6	42.5	42.6	42.6	.32	-
Mean							47.4	47.7	47.8	47.8	31.76	32.25

Table 14 (cont'd)

CHESAPEAKE LIGHTSHIP 36°58'07"N. 75°42'02"W. Depth of water - 65 feet

1956

	January						February					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	65'	0'	65'	0'	30'	50'	65'	0'	65'
1	41.9	42.4	42.9	42.8	32.00	-	39.0	38.8	38.7	38.6	31.90	31.89
2	42.5	42.2	42.2	42.2	.42	-	39.2	39.1	39.0	38.9	31.94	-
3	41.9	41.9	42.0	42.1	.27	-	39.7	39.1	39.1	39.1	30.27	-
4	42.1	42.1	42.1	42.1	32.30	-	39.1	38.9	38.9	38.9	31.97	-
5	39.3	39.2	39.4	39.8	31.95	-	39.7	39.3	39.3	39.3	.89	-
6	42.5	42.9	43.0	43.0	32.25	32.36	39.9	39.4	39.3	39.3	.89	-
7	42.5	42.2	42.3	42.4	32.18	-	39.3	39.1	39.1	39.1	.89	-
8	40.9	40.9	40.9	40.8	31.84	-	41.6	39.7	39.6	39.6	.83	31.85
9	38.8	38.8	38.8	38.8	.37	-	41.2	39.8	39.6	39.6	.62	-
10	39.4	39.1	39.1	39.1	.78	-	40.9	39.6	39.4	39.4	.55	-
11	39.5	39.1	39.3	40.0	31.95	-	40.9	39.4	39.5	39.5	.51	-
12	39.0	39.0	39.2	39.3	32.01	-	39.9	39.2	39.2	39.2	.55	-
13	38.5	38.1	38.1	38.2	31.80	31.83	41.5	39.6	39.3	39.2	.56	-
14	37.9	37.9	37.9	37.9	31.75	-	40.3	39.7	39.3	39.3	31.56	-
15	38.2	38.3	39.0	39.0	32.36	-	44.8	40.0	39.9	39.8	26.77	31.82
16	37.6	38.0	38.5	38.6	31.87	-	40.8	40.7	40.1	40.1	31.47	-
17	37.8	37.8	37.8	37.8	32.12	-	40.8	40.2	40.1	40.1	.60	-
18	37.8	37.8	37.8	37.8	31.98	-	40.9	40.8	40.7	40.6	.66	-
19	37.7	37.7	37.7	37.8	32.00	-	41.4	41.1	41.0	41.0	.73	-
20	37.4	37.6	37.7	37.7	31.95	31.97	41.4	41.1	41.1	41.0	.66	-
21	37.6	37.6	37.6	37.7	.93	-	41.8	41.3	41.3	41.2	.59	-
22	38.0	37.2	37.5	37.4	.82	-	41.4	41.2	41.3	41.2	.72	31.78
23	38.0	37.5	37.5	37.5	31.95	-	41.3	41.0	41.0	39.8	.78	-
24	38.0	38.0	38.0	38.0	32.11	-	41.0	40.9	40.9	40.9	31.71	-
25	37.5	37.3	37.3	37.5	31.93	-	42.3	41.3	41.1	41.1	28.49	-
26	37.4	37.2	37.2	37.2	31.98	-	42.3	41.1	41.1	41.1	30.18	-
27	37.7	37.0	37.0	37.0	-	31.93	42.9	41.4	41.5	41.5	28.75	-
28	37.5	36.8	36.8	36.9	31.72	-	43.0	41.8	41.8	41.8	30.51	-
29	37.5	37.3	37.2	37.2	.94	-	42.1	41.6	41.5	41.4	31.74	31.81
30	38.6	38.0	38.0	38.0	.70	-						
31	38.2	38.2	38.2	38.2	31.90	-						
Mean	39.0	38.9	39.0	39.0	31.97	32.02	41.0	40.2	39.1	40.0	31.18	31.83

Table 14 (cont'd)

CHESAPEAKE LIGHTSHIP 36°58'07"N. 75°42'02"W. Depth of water - 65 feet

1956

	March						April					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	65'	0'	65'	0'	30'	50'	65'	0'	65'
1	42.1	42.0	41.5	41.5	31.16	-	43.5	41.9	41.8	41.9	32.06	-
2	43.4	42.0	42.0	41.9	28.57	-	46.1	43.1	42.1	42.1	26.14	-
3	44.0	42.3	42.2	42.1	28.48	-	44.8	42.9	42.8	42.8	28.59	-
4	43.2	43.0	42.8	42.7	30.38	-	47.9	42.9	42.7	42.6	29.15	31.91
5	44.4	43.1	42.9	42.8	29.78	-	50.5	43.0	42.8	42.8	29.04	-
6	46.1	44.0	43.6	43.5	30.47	-	50.8	42.9	42.7	42.8	24.80	-
7	47.4	46.0	45.1	43.3	.44	32.31	48.1	42.7	42.7	42.6	27.67	-
8	46.0	44.3	44.0	43.5	30.58	-	45.0	45.0	42.9	42.9	30.27	-
9	46.5	44.9	44.1	44.1	-	-	45.0	44.6	43.8	43.3	31.22	-
10	47.6	44.5	44.5	44.4	25.37	-	45.1	43.9	43.7	43.6	31.35	-
11	45.0	44.1	44.1	44.1	27.08	-	44.4	43.7	43.3	43.2	31.25	31.34
12	45.9	45.0	44.9	44.9	31.06	-	44.5	43.7	43.3	43.2	31.25	-
13	46.0	45.2	44.9	44.9	30.07	-	44.5	43.4	43.3	43.1	31.27	-
14	46.0	45.1	44.9	44.8	30.07	31.61	48.6	43.7	43.6	43.5	28.10	-
15	44.8	44.8	44.8	44.8	31.79	-	47.9	43.3	43.2	43.2	27.51	-
16	44.8	44.5	44.4	44.3	32.00	-	49.0	46.4	43.9	43.8	27.08	-
17	44.5	43.9	43.9	43.9	.17	-	48.9	46.5	44.0	43.9	27.08	-
18	43.9	43.8	43.7	43.7	.26	-	49.4	46.6	43.9	43.9	27.24	31.48
19	43.0	43.0	42.9	42.8	.02	-	48.9	47.7	44.1	44.0	27.22	-
20	43.0	43.0	43.0	42.9	32.25	-	48.1	46.8	43.9	43.9	28.15	-
21	43.0	42.8	42.8	42.8	31.91	31.86	48.3	45.9	44.2	44.2	29.28	-
22	43.0	42.0	42.0	41.9	.86	-	49.0	45.4	44.7	44.7	26.97	-
23	43.0	42.5	42.0	41.9	31.87	-	48.2	48.0	45.2	45.2	28.93	-
24	44.9	42.1	42.1	42.1	29.80	-	47.	-	-	-	28.89	-
25	42.1	42.0	41.9	41.8	32.24	-	48.5	46.8	45.9	-	30.92	29.25
26	42.2	41.8	41.6	41.6	.22	-	48.0	45.9	45.7	45.7	29.72	-
27	42.0	41.8	41.8	41.8	32.47	-	49.5	46.1	45.7	45.7	29.13	-
28	41.9	41.9	41.9	41.9	-	32.06	54.2	46.2	46.3	45.9	27.15	-
29	41.5	41.5	41.5	41.5	31.93	-	53.7	46.2	45.5	45.5	25.13	-
30	42.0	41.7	41.5	41.5	.92	-	53.5	46.5	46.5	46.5	24.39	-
31	42.7	41.8	41.8	41.8	31.73	-						
Mean	44.1	43.2	43.1	43.0	30.83	31.96	48.0	44.9	43.9	43.8	28.56	31.00

Table 14 (cont'd)

CHESAPEAKE LIGHTSHIP 36°58'07"N. 75°42'02"W. Depth of water - 65 feet

1956

	May						June					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	65'	0'	65'	0'	30'	50'	65'	0'	65'
1	52.0	48.2	45.2	45.2	29.16	-	66.8	55.1	54.1	54.1	24.88	-
2	51.5	48.4	47.1	47.0	.42	31.01	65.1	55.1	54.1	54.1	27.23	-
3	52.7	47.9	46.6	46.5	29.33	-	63.9	54.3	54.1	54.1	27.04	-
4	52.3	48.0	47.1	47.0	-	-	65.0	54.1	54.0	54.0	28.60	-
5	52.0	51.9	47.9	47.9	30.21	-	66.7	54.9	54.9	54.8	28.85	-
6	52.9	49.7	47.8	47.8	29.59	-	65.1	55.4	55.0	55.0	30.30	31.82
7	50.7	50.6	50.3	50.2	30.59	-	64.9	62.1	55.0	55.0	29.43	-
8	50.5	50.5	50.3	50.2	.63	-	65.6	56.9	55.6	55.5	28.53	-
9	52.2	52.2	50.4	-	30.39	30.82	65.0	63.1	58.2	57.5	29.84	-
10	56.	-	-	-	26.02	-	65.1	60.9	58.3	58.1	29.87	-
11	54.0	49.6	49.1	49.1	27.07	-	66.8	59.0	56.6	56.6	30.04	-
12	59.0	50.0	49.2	49.2	27.08	-	69.	-	-	-	30.34	-
13	57.0	51.3	49.3	49.2	29.15	-	69.1	64.4	55.8	55.4	28.45	28.16
14	61.0	51.5	49.2	49.2	28.93	-	71.9	58.2	55.1	55.1	26.67	-
15	56.0	53.6	50.7	50.5	31.37	-	73.0	60.3	53.9	53.5	26.49	-
16	56.5	51.3	50.9	50.9	.35	31.39	68.3	56.1	54.5	54.0	25.50	-
17	55.7	54.5	54.1	54.1	31.52	-	71.4	55.1	53.3	53.3	25.79	-
18	57.0	54.2	54.1	54.1	30.30	-	68.9	68.9	59.9	59.0	23.04	-
19	58.0	54.9	54.1	54.1	30.19	-	68.8	68.9	59.8	59.0	30.23	-
20	56.8	55.9	53.8	-	29.67	-	68.1	67.7	66.8	66.5	30.25	30.39
21	59.8	53.6	53.1	53.1	28.57	-	70.5	66.2	64.1	61.8	26.36	-
22	59.8	53.8	53.1	53.1	28.51	-	71.8	65.3	59.2	58.5	23.92	-
23	64.0	52.2	51.9	51.9	24.97	31.40	74.9	66.5	56.7	56.6	23.42	-
24	59.0	56.3	53.2	53.2	28.35	-	73.6	67.3	56.1	56.1	25.48	-
25	58.3	58.0	53.5	53.5	29.14	-	77.4	67.5	56.3	56.2	24.52	-
26	58.8	57.9	53.5	53.4	29.07	-	75.8	65.6	55.8	54.8	27.71	-
27	60.5	53.2	52.9	52.8	27.95	-	76.6	66.8	55.7	55.5	24.45	32.30
28	60.3	53.7	53.1	53.1	26.44	-	75.	-	55.4	55.0	29.09	-
29	58.8	53.8	53.6	-	29.76	-	72.9	69.7	55.1	54.9	22.12	-
30	58.8	55.0	53.5	53.5	29.78	31.20	73.8	70.5	56.1	55.9	28.92	-
31	60.3	53.1	52.9	52.9	28.39	-						
Mean	56.5	52.5	51.0	50.0	29.10	31.16	69.7	62.0	56.5	56.2	27.28	30.67

Table 14 (cont'd)

CHESAPEAKE LIGHTSHIP 36°58'07"N. 75°42'02"W. Depth of water - 65 feet

1956

Day	July Temperature °F 0'	30'	50'	65'	July Salinity °/oo 0'	65'	August Temperature °F 0'	30'	50'	65'	August Salinity °/oo 0'	65'
1	70.3	66.2	53.1	52.6	29.43	-	75.1	66.0	57.6	-	29.10	31.87
2	79.3	57.8	56.1	55.8	24.15	-	75.3	61.2	59.0	-	30.56	-
3	79.1	60.0	56.6	55.9	23.95	-	75.4	60.6	59.2	-	.54	-
4	78.8	64.2	54.8	-	23.76	32.43	74.9	64.2	-	-	.44	-
5	78.1	66.1	55.3	54.9	27.49	-	75.5	60.7	59.5	-	30.52	-
6	75.5	57.7	55.1	55.0	28.93	-	75.4	-	-	-	29.20	-
7	75.0	56.0	55.7	55.7	27.88	-	75.7	72.4	69.7	64.1	26.88	-
8	75.7	56.3	56.0	56.0	28.39	-	75.9	73.9	-	-	27.54	29.16
9	66.2	54.7	54.5	54.4	29.16	-	75.8	72.0	69.6	69.1	27.21	-
10	66.0	54.4	54.1	54.1	29.71	-	75.	-	-	-	26.89	-
11	69.8	54.6	53.2	53.2	30.08	32.66	76.	-	-	-	27.82	-
12	70.0	54.3	53.3	53.3	28.52	-	76.	-	-	-	.85	-
13	72.2	54.8	53.6	53.4	27.62	-	76.	-	-	-	27.85	-
14	65.3	54.8	54.1	54.1	30.16	-	77.0	74.1	67.6	-	31.95	-
15	69.6	55.1	53.9	53.1	29.33	-	77.0	73.1	65.6	-	27.69	28.34
16	71.4	53.6	53.1	53.0	27.37	-	78.0	73.6	66.0	-	.22	-
17	70.7	53.8	53.8	53.8	27.32	-	79.1	70.7	66.9	65.5	.58	-
18	70.0	53.6	53.3	53.3	30.77	32.75	79.4	70.3	65.3	-	.58	-
19	72.0	55.0	54.6	54.5	28.85	-	79.0	74.4	-	-	27.79	-
20	73.2	55.7	55.1	55.0	28.96	-	77.1	68.0	62.4	-	29.27	-
21	71.	-	-	-	29.00	-	77.1	66.9	63.0	62.6	.24	-
22	70.3	51.8	51.2	51.2	29.18	-	75.8	72.0	70.2	-	29.75	31.09
23	71.5	55.0	54.9	54.9	28.79	-	75.1	72.1	-	-	30.08	-
24	73.7	55.0	54.8	54.8	29.09	-	75.9	72.1	71.0	70.9	29.56	-
25	72.8	54.8	54.8	54.8	28.86	32.81	75.3	71.0	-	-	30.45	-
26	74.4	54.3	54.0	54.1	29.34	-	75.0	-	-	-	.28	-
27	75.3	55.0	55.1	55.0	26.38	-	75.0	71.0	61.8	-	.27	-
28	76.9	59.6	58.2	58.0	30.09	-	76.0	-	-	-	-	-
29	76.8	62.0	58.5	58.4	.06	-	76.0	67.0	64.8	-	.30	30.28
30	79.0	69.2	-	-	.05	-	76.0	-	-	-	.27	-
31	76.8	66.8	58.2	-	30.19	-	75.5	-	-	-	30.30	-
Mean	73.1	57.4	54.8	54.5	28.48	32.66	76.2	69.4	64.7	-	29.07	30.15

Table 14 (cont'd)

CHESAPEAKE LIGHTSHIP 36°58'07"N. 75°42'02"W. Depth of water - 65 feet

1956

Depth / Day	September Temperature °F 0'	30'	50'	65'	Salinity °/oo 0'	65'	October Temperature °F 0'	30'	50'	65'	Salinity °/oo 0'	65'
1	74.0	74.0	-	-	27.42	-	68.9	68.8	68.1	68.0	31.40	-
2	73.9	74.0	-	-	27.45	-	68.9	68.9	68.1	68.0	.39	-
3	74.0	74.0	74.0	-	27.32	-	68.9	68.9	68.1	68.0	.38	31.48
4	74.0	74.0	-	-	27.38	-	67	-	-	-	.41	-
5	74.0	-	-	-	27.48	27.46	67	-	-	-	.39	-
6	74.0	-	-	-	27.56	-	67	-	-	-	.46	-
7	74.0	74.0	-	-	27.39	-	66	-	-	-	.54	-
8	73.5	-	-	-	27.48	-	66	-	-	-	.45	-
9	74.5	74.3	-	-	27.47	-	67	-	-	-	.41	-
10	74.2	74.1	73.8	-	27.38	-	63	-	-	-	.39	31.39
11	74.0	-	-	-	27.39	-	62.8	62.7	62.7	62.5	.36	-
12	73.3	73.5	73.1	73.1	29.69	29.60	62.7	-	-	-	.40	-
13	74.0	-	-	-	27.44	-	64.	-	-	-	.36	-
14	75.3	73.1	73.0	72.8	30.72	-	63.	-	-	-	.37	-
15	71.5	71.1	71.2	71.1	31.26	-	62.6	62.6	-	-	.37	-
16	-	-	-	-	31.25	-	62.7	62.7	-	-	.37	-
17	-	-	-	-	31.24	-	64	-	-	-	.39	31.37
18	-	-	-	-	31.24	-	62.8	62.8	-	-	.39	-
19	-	-	-	-	31.20	31.08	63	-	-	-	.46	-
20	-	-	-	-	31.08	-	62.9	-	-	-	.64	-
21	-	-	-	-	31.09	-	64	-	-	-	31.73	-
22	-	-	-	-	31.12	-	64	-	-	-	27.92	-
23	68.1	68.0	68.0	68.0	31.08	-	62.8	62.6	-	-	.92	-
24	68.0	68.0	68.0	68.0	31.51	-	61	-	-	-	.86	27.85
25	68.1	68.0	68.0	68.0	31.49	-	62.8	-	-	-	.88	-
26	68.1	68.1	68.1	68.1	31.49	31.48	61	-	-	-	27.92	-
27	68.5	68.1	68.1	68.0	31.52	-	61	-	-	-	28.19	-
28	68.0	67.8	67.9	67.9	31.50	-	61	-	-	-	28.06	-
29	-	-	-	-	31.51	-	62	-	-	-	27.99	-
30	68.1	68.1	68.1	68.1	31.51	-	62.8	-	-	-	28.01	-
31							62	-	-	-	28.03	30.73
Mean	72.0	71.3	70.1	69.3	29.69	29.90	64.0	65.0	-	-	30.32	30.56

Table 14 (cont'd)

CHESAPEAKE LIGHTSHIP 36°58'07"N. 75°42'02"W. Depth of water - 65 feet

1956

	November						December					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	65'	0'	65'	0'	30'	50'	65'	0'	65'
1	57.	-	-	-	30.37	-	53.5	54.0	54.7	54.8	-	-
2	56.	-	-	-	.26	-	52.9	53.0	54.0	54.0	-	-
3	55.	-	-	-	.10	-	52.0	54.1	54.2	54.2	-	-
4	59.4	61.7	60.2	-	.09	-	53.0	54.4	54.4	54.4	-	-
5	58.0	-	-	-	.09	-	53.5	54.2	54.1	54.2	-	-
6	56.	-	-	-	.01	-	53.0	54.4	54.4	54.4	-	-
7	55.	-	-	-	.08	-	53.0	54.9	54.9	54.8	-	-
8	58.2	58.1	-	-	.00	-	54.0	54.1	55.1	55.2	-	-
9	55.	-	-	-	.07	-	53.8	55.0	55.5	55.5	-	-
10	57.3	-	-	-	.07	-	54.2	54.4	54.3	54.3	-	-
11	58.0	58.2	-	-	.06	-	54.0	54.7	54.7	54.7	-	-
12	58.0	-	-	-	.07	-	54.0	54.8	54.9	54.9	-	-
13	57.	-	-	-	.12	-	53.0	54.5	54.5	54.5	-	-
14	58.0	-	-	-	.04	-	53.7	55.0	54.9	54.9	-	-
15	55.	-	-	-	.01	-	-	-	-	-	-	-
16	56.	-	-	-	.16	-	54.5	54.3	54.3	54.3	-	-
17	55.	-	-	-	30.14	-	54.9	54.5	54.5	54.5	-	-
18	56.	-	-	-	20.76	-	54.5	54.6	54.6	54.6	-	-
19	55.	-	-	-	.76	-	54.0	53.9	54.0	53.9	-	-
20	55.	-	-	-	.78	-	54.0	54.7	54.1	54.1	-	-
21	55.	-	-	-	20.72	-	54.8	54.8	54.8	54.8	-	-
22	-	-	-	-	-	-	54.7	54.8	54.5	54.5	-	-
23	53.	-	-	-	-	-	54.5	54.5	54.4	54.4	-	-
24	53.	-	-	-	-	-	58.	-	-	-	-	-
25	55.2	55.1	55.1	55.1	-	-	52.4	52.4	52.4	52.3	-	-
26	55.7	55.9	55.9	55.9	-	-	52.2	52.3	52.3	52.2	-	-
27	54.9	55.1	55.2	55.2	-	-	51.2	51.2	51.2	51.2	-	-
28	53.8	53.6	53.8	53.8	-	-	51.2	51.9	51.9	51.9	-	-
29	52.0	54.8	55.3	55.4	-	-	50.1	50.2	50.3	50.3	-	-
30	53.8	53.8	53.8	53.8	-	-	-	-	-	-	-	-
31							50.0	50.0	50.0	50.1	-	-
Mean	55.7	56.3	-	-	-	-	53.4	53.8	53.9	53.9	-	-

Diamond Shoals Lightship

Temperature and salinity fluctuations from day to day are extreme at this location, owing to the fact that the western edge of the Florida Current tends to creep in over the shelf at this point. Meanders in the current sweep to and fro across the position of the lightship.

One-third monthly means of surface temperature indicate that temperatures were lower during the first four months of the year than for the period 1923-56 except for the mid- and last-thirds of February. Autumn temperatures were also below the record mean. In other words coastal water tended to extend out across Diamond Shoals during the winter, early spring and autumn to a broader extent than indicated by the average for the period of record for these periods during the year.

Due to the large range in temperature changes, the depth-time profile of temperature is drawn with five degree isotherms, rather than one degree isotherms as in the other figures. This figure may be very misleading, however, because the sequence of encroachments of warm saline water sweep in and out again with great rapidity. Further, the penetrations of warm water may occur at the surface, mid-depth or bottom. Averaging the data for ten days at the other stations simplifies the presentation without severely hiding the significant facts, but may do so at this location. The reader, if interested in the phenomena at Diamond Shoals would do well to draw his own plot from the tabulated daily data.

Surface temperatures ranged from 40 - 85°F, bottom temperatures from 42 to 79°F.

Surface salinity ranged from 29.6°/oo to 36.3°/oo and bottom salinity from 32.6°/oo to 36.4°/oo.

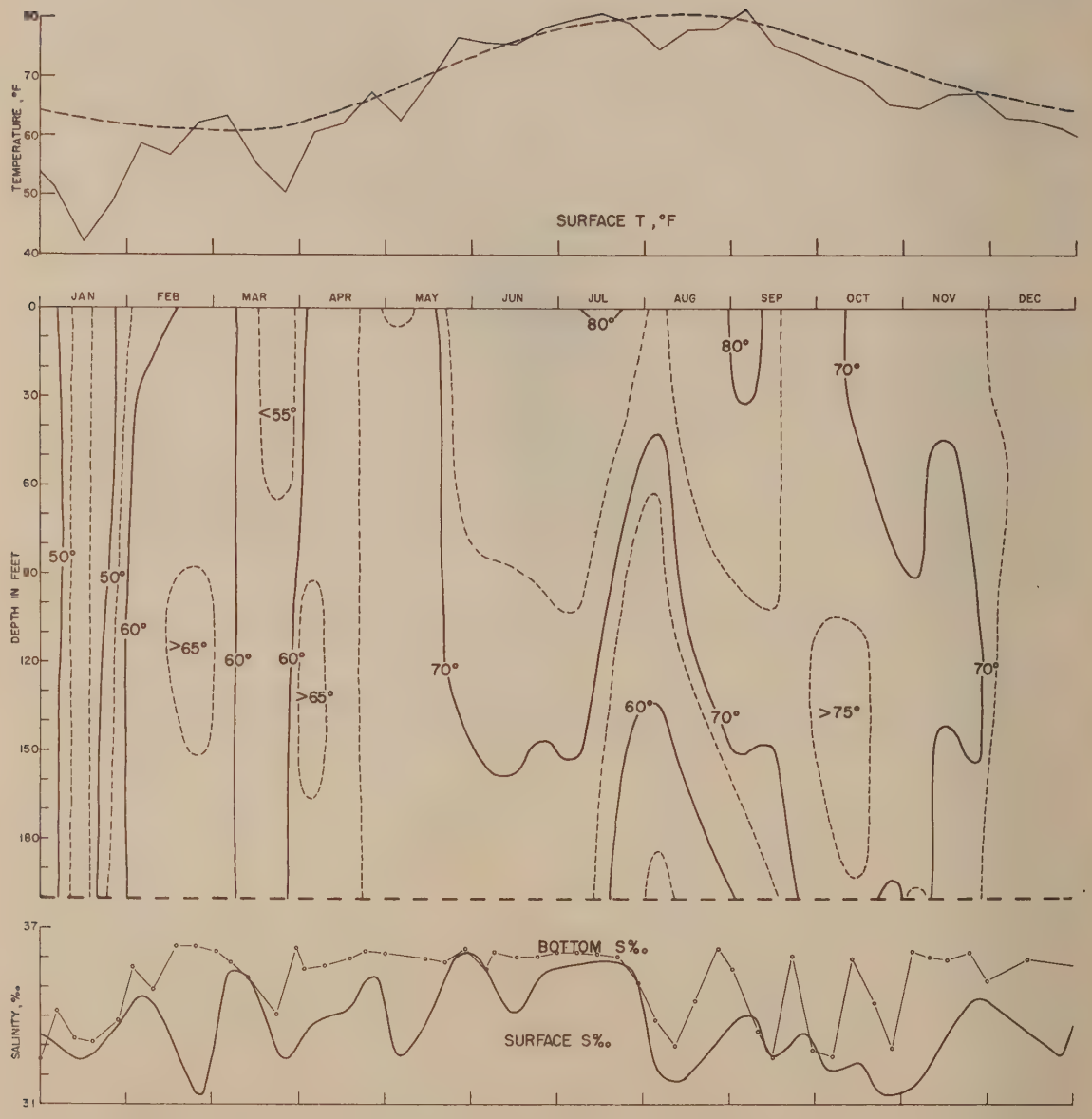

Figure 16. Diamond Shoals Lightship, 1956. (Dashed line in upper diagram, mean for period 1923-1956)

Table 15

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

December, 1955

Day	Temperature °F						Salinity °/oo	
Depth	0'	30'	50'	100'	150'	200'	0'	200'
1	72.1	72.1	72.1	72.0	70.3	68.8	36.27	-
2	70.2	70.2	70.0	68.7	68.3	68.2	.30	-
3	75.1	74.3	72.4	70.7	68.0	67.2	.11	-
4	74.4	74.3	72.0	70.7	69.4	68.9	.18	-
5	69.6	69.7	69.7	69.3	66.8	66.5	36.29	-
6	67.2	67.3	67.7	68.4	69.6	69.6	35.40	-
7	60.2	60.2	60.2	66.4	67.4	67.7	33.59	-
8	59.2	59.2	59.3	59.9	64.3	65.3	33.09	35.01
9	77.2	77.2	77.2	77.2	76.4	66.2	36.06	-
10	76.8	76.8	76.8	76.7	75.9	75.9	.11	-
11	75.1	75.1	73.7	72.3	71.3	71.1	.14	-
12	73.1	73.1	73.0	72.8	71.9	70.0	36.19	-
13	70.9	63.5	64.3	70.2	70.9	67.5	34.10	-
14	66.1	66.1	66.1	66.4	67.4	67.5	35.03	35.53
15	60.2	64.3	69.8	70.2	69.9	69.9	33.66	-
16	55.2	55.3	55.7	62.2	67.8	68.0	32.65	-
17	49.8	57.4	61.9	62.3	68.1	68.1	31.36	-
18	52.6	55.0	57.3	62.2	65.4	62.9	31.81	-
19	58.2	68.0	70.3	70.4	67.4	61.0	33.41	-
20	60.5	60.8	60.8	60.8	60.8	60.8	34.14	-
21	52.0	52.0	52.3	56.0	59.1	60.1	32.50	34.23
22	50.6	50.8	51.2	52.0	57.3	60.5	32.30	-
23	52.2	54.1	54.1	63.7	64.7	64.9	32.37	-
24	51.8	56.7	59.0	59.9	66.4	66.0	32.08	-
25	73.8	73.2	73.1	70.8	69.5	68.8	36.13	-
26	73.5	73.7	73.8	73.9	73.4	68.8	.15	-
27	72.1	72.1	72.1	72.1	71.5	68.6	36.13	-
28	-	-	-	-	-	-	-	-
29	47.3	47.3	47.2	46.7	46.4	46.4	32.40	32.56
30	44.9	48.4	55.6	57.4	57.9	58.3	31.82	-
31	47.6	47.4	47.3	47.5	47.5	47.4	33.37	-
Mean	63.0	63.8	64.5	65.7	66.3	64.7	34.30	34.33

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

January, 1956

Depth / Day	Temperature °F 0'	30'	50'	100'	150'	200'	Salinity °/oo 0'	200'
1	43.7	48.1	47.8	50.7	53.2	53.3	30.26	-
2	51.9	64.1	63.7	63.0	54.8	54.0	31.09	-
3	48.1	48.1	50.1	51.3	50.9	50.0	33.74	-
4	44.3	43.9	43.9	44.7	49.4	53.2	31.62	-
5	-	-	-	-	-	-	-	-
6	63.9	63.6	61.2	57.2	53.8	49.8	35.62	34.20
7	71.1	71.1	66.4	59.2	55.8	51.9	36.16	-
8	-	-	-	-	-	-	-	-
9	44.8	44.7	44.7	44.8	44.9	44.9	33.33	-
10	43.6	43.3	43.4	43.9	45.4	45.7	32.90	-
11	43.4	43.4	43.4	43.7	44.0	44.1	32.97	-
12	41.9	41.9	41.9	42.2	44.4	44.9	32.29	33.25
13	41.1	41.0	41.1	41.7	43.1	43.9	31.98	-
14	42.4	42.3	42.3	42.4	42.6	42.6	32.84	-
15	43.2	42.9	43.0	42.9	43.0	43.0	33.16	-
16	43.9	43.9	43.8	43.8	43.7	43.3	33.13	-
17	40.8	40.7	41.9	43.1	43.4	43.3	31.16	-
18	42.1	41.9	41.9	41.9	42.3	44.2	33.72	33.14
19	43.5	43.2	43.2	43.2	43.1	43.1	33.06	-
20	40.8	40.7	41.3	43.4	43.7	43.5	31.92	-
21	41.8	41.8	41.9	42.6	42.9	43.1	32.52	-
22	42.1	42.1	42.2	42.3	42.3	42.3	32.88	-
23	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-
25	39.9	39.8	39.9	44.9	53.2	55.2	31.55	-
26	69.0	69.0	69.0	66.2	63.1	61.0	36.28	-
27	41.4	41.3	43.9	52.8	55.1	53.9	32.02	33.91
28	40.7	40.8	41.2	43.8	47.8	56.0	32.27	-
29	39.1	40.2	42.9	57.1	57.8	57.8	32.12	-
30	64.9	64.8	64.7	64.3	63.6	63.3	35.73	-
31	61.2	61.2	61.2	61.3	61.1	64.6	35.33	-
Mean	47.2	47.8	47.8	48.8	49.1	49.5	32.99	33.63

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

February, 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	66.0	66.1	66.1	66.0	62.7	61.5	36.25	-
2	60.8	60.7	60.7	60.7	60.2	58.1	36.72	35.70
3	47.7	55.5	61.9	62.5	62.9	62.9	-	-
4	56.3	56.3	56.3	56.6	57.8	61.9	34.39	-
5	45.7	47.1	51.2	54.7	56.1	57.0	32.31	-
6	68.8	68.4	67.6	61.6	56.9	58.0	36.16	-
7	50.8	57.0	62.0	62.6	61.6	61.2	33.15	-
8	67.5	67.4	67.4	65.0	62.3	62.3	36.42	-
9	60.1	66.0	66.1	66.1	65.1	64.9	31.64	34.94
10	64.1	64.3	65.2	65.1	64.7	63.8	35.75	-
11	71.3	71.3	71.3	69.9	55.7	55.5	36.35	-
12	46.2	50.2	64.1	66.9	61.8	58.6	31.63	-
13	43.9	43.9	44.2	46.1	52.5	58.1	30.95	-
14	47.7	56.2	61.0	68.7	65.7	63.0	30.80	-
15	45.8	57.9	63.7	68.0	65.1	66.0	30.53	-
16	64.1	64.1	64.2	64.6	67.0	67.5	35.16	-
17	50.0	61.1	61.9	66.2	66.7	66.8	31.72	36.42
18	66.9	66.9	66.9	67.2	67.2	66.9	35.97	-
19	69.2	69.1	69.1	67.8	66.4	66.0	36.32	-
20	62.9	63.0	63.7	65.1	65.7	66.5	35.10	-
21	44.9	43.8	50.0	64.4	65.7	66.5	31.05	-
22	73.1	73.2	73.1	72.8	65.6	66.1	36.25	-
23	71.6	71.7	71.7	71.4	70.1	66.8	36.35	-
24	70.1	70.2	70.3	70.0	66.7	65.1	36.05	36.40
25	56.2	63.7	67.0	66.5	62.0	62.2	33.39	-
26	57.9	58.0	58.0	58.1	63.0	64.0	34.31	-
27	-	-	-	-	-	-	34.89	-
28	66.8	66.9	66.8	66.9	66.8	66.8	36.30	-
29	57.1	57.1	57.4	60.1	61.1	62.0	34.20	-
30								
Mean	59.0	61.0	63.2	64.3	63.0	63.1	34.30	35.85

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

March 1956

Depth / Day	Temperature °F 0'	30'	50'	100'	150'	200'	Salinity °/oo 0'	200'
1	58.2	59.5	61.2	65.2	67.4	67.7	34.08	36.24
2	68.8	68.8	69.0	68.9	67.0	66.0	36.45	-
3	68.3	68.2	67.8	67.6	60.2	60.0	36.44	-
4	60.9	60.8	61.0	62.7	60.5	57.0	35.88	-
5	62.2	65.9	66.0	65.7	65.8	58.2	35.71	-
6	68.0	67.0	65.0	64.0	63.9	63.5	36.26	35.89
7	59.8	60.0	63.9	63.0	64.9	65.0	33.60	-
8	62.5	62.7	66.8	64.6	-	-	35.16	-
9	62.0	61.9	61.8	60.3	60.9	-	35.51	-
10	63.2	63.0	63.1	61.8	63.8	63.0	35.56	-
11	60.2	60.2	60.3	60.6	62.8	62.2	35.09	-
12	58.5	58.5	58.6	58.7	-	-	34.81	-
13	59.8	59.6	59.6	59.6	59.7	59.8	35.12	35.32
14	60.5	60.3	60.3	60.8	60.8	60.8	34.75	-
15	58.5	58.5	58.9	59.1	59.9	61.0	34.31	-
16	53.5	53.5	53.5	53.8	-	-	33.32	-
17	-	-	-	-	-	-	-	-
18	49.7	49.1	51.3	52.4	51.7	53.0	32.53	-
19	49.3	49.1	49.7	51.3	54.5	60.0	32.40	-
20	47.5	47.4	47.4	47.4	47.8	49.0	32.36	-
21	47.0	46.4	46.4	46.6	47.8	-	31.73	
22	45.3	45.4	46.3	53.8	58.3	56.8	31.16	34.01
23	47.0	46.8	48.8	59.8	59.5	60.0	30.78	-
24	46.5	-	-	-	-	-	31.26	-
25	49.1	49.1	49.5	50.6	52.5	56.1	32.10	-
26	46.5	49.0	52.2	57.3	61.5	62.0	31.05	-
27	43.8	44.2	43.8	43.3	46.1	43.5	31.86	-
28	60.6	59.7	56.4	61.2	63.5	63.9	34.65	-
29	68.0	68.0	66.7	66.8	65.6	65.5	36.35	36.37
30	51.2	59.0	65.0	67.6	65.5	65.5	31.77	-
31	-	65.2	65.2	65.6	65.1	65.0	35.93	-
Mean	56.4	57.5	58.1	59.3	59.9	60.2	33.93	35.57

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

April 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	66.2	66.0	66.2	64.2	63.5	63.3	-	-
2	71.3	66.2	64.2	67.1	66.0	65.8	36.14	35.67
3	68.3	68.6	68.3	65.7	65.2	65.1	36.20	-
4	55.	55.5	61.2	65.8	65.1	64.2	32.21	-
5	60.0	57.9	58.2	65.2	65.1	-	33.51	-
6	58.2	58.3	61.8	66.5	67.2	64.8	32.80	-
7	60.1	59.7	59.9	65.9	66.2	64.5	33.48	-
8	52.9	53.4	55.1	57.9	60.9	64.0	32.28	-
9	57.1	61.3	64.9	68.6	65.4	64.4	33.57	35.75
10	57.9	60.7	66.2	68.9	67.1	67.0	33.50	-
11	58.2	58.3	58.6	61.9	63.3	64.0	34.19	-
12	-	-	-	-	-	-	-	-
13	50.7	47.7	47.1	47.3	47.8	47.8	31.69	-
14	51.8	47.3	47.3	47.7	56.0	57.0	30.11	-
15	70.7	70.7	70.4	71.1	69.3	68.9	36.05	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	63.2	62.2	64.8	68.1	67.2	67.2	34.31	36.01
19	70.	70.1	69.9	68.1	67.9	67.9	36.13	-
20	70.6	70.7	70.6	69.1	67.3	65.1	36.58	-
21	61.8	61.5	61.4	62.1	62.0	65.2	34.60	-
22	-	-	-	-	-	-	-	-
23	62.1	67.1	67.9	67.8	67.8	67.8	35.54	36.25
24	69.3	69.4	69.3	69.0	67.9	67.5	36.28	-
25	69.1	69.3	69.3	67.9	67.9	67.4	36.33	-
26	69.1	69.0	68.9	67.6	66.1	66.2	36.30	-
27	69.8	68.8	68.7	67.1	65.3	64.0	36.31	-
28	68.2	68.1	68.1	67.9	65.9	63.9	33.25	-
29	68.3	68.4	68.1	67.9	65.2	64.8	36.29	-
30	69.7	68.9	69.0	68.4	63.2	63.0	33.57	36.19
31								
Mean	63.4	63.3	64.0	65.2	64.7	62.0	34.45	35.97

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water 200 feet

May 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	69.0	69.9	69.2	66.6	66.5	63.4	35.26	-
2	72.8	71.7	70.9	68.1	66.2	66.1	36.33	-
3	68.0	70.9	70.2	69.3	67.5	66.1	33.34	-
4	57.4	62.8	66.2	67.0	67.0	65.1	30.71	-
5	63.1	64.1	63.6	54.5	63.7	67.0	33.10	-
6	64.9	-	-	-	-	-	31.30	-
7	57.0	53.8	-	65.9	66.2	64.0	31.30	-
8	-	-	-	-	-	-	-	-
9	53.	-	-	-	-	-	31.56	-
10	60.0	-	63.1	70.0	67.3	66.6	30.95	-
11	58.8	57.5	53.7	68.6	65.0	63.1	31.71	-
12	62.7	57.4	56.4	56.5	63.7	-	31.26	-
13	60.2	63.0	68.0	68.7	67.9	67.0	31.81	-
14	64.5	64.2	63.4	68.2	67.9	-	31.82	36.00
15	65.7	65.7	61.7	64.8	67.2	67.2	32.79	-
16	72.3	73.5	73.0	70.0	68.3	68.3	35.56	-
17	76.5	76.7	76.2	74.0	70.9	68.2	36.11	-
18	75.6	74.8	74.1	70.0	68.7	68.2	36.06	-
19	81.0	81.5	81.3	77.3	70.6	69.2	36.07	-
20	76.0	77.8	77.7	70.5	69.8	67.2	36.07	-
21	77.0	-	77.1	71.2	68.9	68.2	36.14	35.89
22	77.8	77.0	76.3	74.9	68.0	67.1	36.15	-
23	75.0	75.4	76.1	72.0	66.5	65.2	35.69	-
24	-	-	-	-	-	-	-	-
25	78.7	-	78.9	-	-	-	36.10	-
26	78.8	77.2	-	-	-	-	36.08	-
27	75.1	75.2	75.1	68.0	65.2	64.8	36.27	-
28	77.	-	-	-	-	-	36.14	36.31
29	77.6	77.8	77.3	74.0	73.0	66.1	36.15	-
30	77.0	77.5	77.6	75.7	71.0	66.8	36.08	-
31	73.3	73.0	-	71.3	66.0	62.8	35.95	-
Mean	69.9	70.4	70.7	69.0	67.6	66.3	34.27	36.07

Table 15 (cont'd)

DIAMOND SHOAL LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

June 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	-	-	-	-	-	-	-	-
2	79.	-	-	-	-	-	36.08	-
3	77.6	77.0	77.0	76.3	71.5	64.2	36.17	-
4	77.8	77.3	77.0	76.5	71.6	64.6	.17	-
5	76.7	76.3	76.0	74.1	67.5	-	.06	-
6	75.8	75.7	75.7	71.3	-	-	36.11	-
7	75.8	75.8	75.5	75.0	-	-	35.91	-
8	73.0	73.2	73.4	74.8	74.3	65.6	.44	36.23
9	79.0	77.2	76.2	75.0	69.8	65.8	35.92	-
10	67.5	-	-	-	-	-	33.13	-
11	67.0	67.0	66.1	68.3	72.9	-	29.64	-
12	81.0	80.5	80.4	75.0	74.4	74.5	36.04	-
13	79.0	79.0	78.4	71.7	67.5	65.6	35.65	-
14	71.0	77.9	78.5	74.2	67.3	65.3	31.04	-
15	73.5	79.0	78.5	75.1	74.7	63.6	32.29	-
16	77.5	77.7	77.5	76.6	71.5	65.6	34.02	36.08
17	80.1	78.0	77.6	73.4	68.0	67.3	36.20	-
18	79.	-	-	-	-	-	.09	-
19	78.0	77.8	77.7	77.5	77.3	-	36.17	-
20	70.3	70.2	72.9	74.0	74.6	68.0	-	-
21	71.3	74.8	75.8	76.3	69.3	-	32.88	-
22	75.3	74.0	74.9	75.6	69.4	66.2	34.69	-
23	78.	-	-	-	-	-	35.85	36.08
24	81.0	81.0	79.8	76.4	72.0	69.6	.80	-
25	79.0	77.7	78.3	77.3	73.7	70.4	35.70	-
26	82.4	80.7	79.3	73.3	69.0	67.3	36.05	-
27	80.5	80.3	77.7	68.6	65.5	63.8	36.14	-
28	77.7	77.3	76.2	70.0	65.4	62.9	35.86	-
29	79.6	79.7	79.6	77.7	67.2	64.0	.86	-
30	80.0	80.0	80.0	75.3	68.1	65.0	35.94	36.21
31								
Mean	76.6	77.0	76.8	74.4	70.6	66.3	35.10	36.15

Table 15 (cont'd)

DIAMOND SHOAL LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

July 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	79.9	78.7	78.5	75.2	65.3	63.9	35.79	-
2	79.9	79.4	79.2	74.5	64.4	63.2	.78	-
3	79.4	79.3	79.0	77.9	70.3	64.0	.62	-
4	80.5	79.7	79.6	78.3	73.6	67.0	.51	-
5	80.5	80.0	79.9	76.6	75.5	75.3	.49	-
6	80.3	80.1	79.7	78.3	74.6	72.5	.65	-
7	77.2	76.8	76.8	75.6	74.5	71.5	.83	36.23
8	80.9	80.2	80.4	78.6	75.4	73.8	35.62	-
9	79.9	79.8	80.0	77.4	68.7	64.8	36.02	-
10	78.5	78.4	78.4	76.8	70.0	66.5	35.96	-
11	82.8	81.2	81.1	79.9	78.4	70.0	.92	-
12	85.7	83.8	83.5	79.9	74.7	68.5	35.78	-
13	84.5	83.9	83.2	76.4	70.1	67.5	36.00	-
14	78.9	78.8	78.4	72.7	63.9	62.5	35.96	36.13
15	79.8	78.4	78.2	76.3	65.4	61.0	35.92	-
16	77.9	77.7	77.3	74.1	66.2	61.1	36.05	-
17	78.2	77.2	76.9	65.8	61.9	59.0	35.90	-
18	78.1	77.1	75.8	72.1	68.7	62.2	.89	-
19	80.9	80.0	77.8	72.7	67.1	62.6	.70	-
20	81.1	80.3	78.6	72.7	67.2	64.2	.82	-
21	79.3	78.8	78.0	68.8	62.3	62.2	.92	36.05
22	79.4	78.7	77.9	72.5	62.9	60.4	.62	-
23	79.9	79.6	78.3	66.9	63.9	61.0	.70	-
24	79.4	76.1	62.9	61.4	60.1	59.9	.84	-
25	78.9	77.4	75.7	63.9	57.1	57.1	.77	-
26	79.6	77.3	70.2	62.1	60.1	57.3	.51	-
27	79.9	77.2	71.6	62.2	59.3	57.5	.82	-
28	80.1	78.7	74.8	51.3	58.0	57.2	.78	35.10
29	79.7	78.9	72.4	59.9	58.0	57.0	.92	-
30	76.9	76.7	76.1	62.7	58.8	52.5	.17	-
31	77.4	66.6	65.0	58.1	57.9	57.8	35.55	-
Mean	79.9	78.6	76.9	71.0	66.3	63.3	35.77	35.88

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

August 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	70.	-	-	-	-	-	-	-
2	74.2	71.6	62.7	62.1	53.1	51.4	30.09	-
3	74.7	72.6	66.7	60.7	60.1	57.5	31.47	-
4	75.2	74.2	66.2	59.3	55.4	58.5	33.23	34.48
5	75.2	73.9	68.9	59.8	57.1	55.0	32.31	-
6	73.8	71.8	70.1	64.7	51.9	52.7	31.46	-
7	75.8	74.8	74.7	64.2	60.7	54.5	36.68	-
8	75.9	73.1	63.7	60.9	60.1	57.1	31.86	-
9	76.2	71.8	65.2	62.0	56.8	49.6	31.21	-
10	77.4	70.7	62.8	58.9	57.1	55.5	31.53	-
11	78.8	71.7	69.6	61.2	54.0	52.0	30.93	33.49
12	81.7	82.1	81.2	73.9	54.1	52.5	32.47	-
13	78.3	80.8	78.7	72.3	61.9	52.0	31.66	-
14	76.5	76.9	76.8	70.1	54.0	53.9	31.26	-
15	77.6	76.2	74.3	73.6	67.1	59.1	31.71	-
16	76.6	82.4	82.6	72.7	59.6	60.0	32.14	-
17	76.3	75.3	71.6	70.0	66.7	58.6	32.57	-
18	77.9	81.1	80.8	68.3	64.7	58.0	31.55	34.51
19	77.3	79.4	75.8	68.9	61.1	60.2	31.86	-
20	80.3	79.7	80.0	76.0	65.2	61.7	33.30	-
21	78.9	83.3	82.3	78.1	66.9	61.6	32.84	-
22	74.1	71.7	69.2	65.3	62.4	61.2	32.30	-
23	75.6	75.1	74.9	69.9	59.7	59.1	31.19	-
24	75.8	74.1	73.9	69.6	59.9	56.1	30.98	-
25	-	-	-	-	-	-	-	-
26	82.8	82.4	82.3	78.9	69.6	59.0	35.81	36.30
27	82.1	82.0	80.2	73.7	67.0	60.7	35.85	-
28	76.7	81.0	81.6	75.6	60.9	60.1	32.73	-
29	77.4	76.6	81.0	77.1	62.4	59.5	32.08	-
30	77.6	78.7	77.6	72.5	63.2	58.0	32.46	-
31	80.9	83.9	83.1	79.9	68.7	61.0	33.86	-
Mean	77.1	76.9	74.4	69.0	60.7	57.1	32.39	34.70

Table 15 (cont'd)

DIAMOND SHOAL LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of Water - 200 feet

September 1956

Day	Temperature °F						Salinity °/oo	
Depth	0'	30'	50'	100'	150'	200'	0'	200'
1	81.0	80.8	80.5	80.1	77.2	62.5	33.13	35.61
2	84.3	84.2	83.7	80.5	74.4	62.4	35.82	-
3	83.3	82.1	81.9	75.4	65.0	60.0	35.87	-
4	81.5	80.7	80.0	78.1	77.7	69.0	33.11	-
5	84.8	83.8	82.3	78.2	71.0	64.0	35.66	-
6	84.0	83.3	76.3	67.0	65.0	61.4	33.88	-
7	80.9	77.2	71.0	62.2	61.0	60.1	31.92	-
8	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-
10	73.0	73.0	73.0	73.0	72.0	73.0	32.75	33.47
11	73.7	72.4	71.4	71.8	72.2	72.2	32.65	-
12	74.6	73.8	72.9	73.0	73.3	64.5	31.24	-
13	74.0	73.5	72.7	76.2	66.0	63.8	31.84	-
14	75.5	75.9	78.6	82.5	81.0	69.0	32.28	-
15	79.5	81.0	76.3	66.9	61.8	60.0	34.64	32.59
16	76.4	76.8	76.0	77.3	63.5	60.1	36.03	-
17	77.0	78.7	78.9	77.8	71.3	62.0	31.11	-
18	76.0	76.1	76.4	78.2	67.9	61.3	31.49	-
19	73.4	73.2	73.0	72.5	69.0	61.9	32.52	-
20	75.1	76.0	77.2	74.7	65.2	60.2	32.36	-
21	73.3	73.0	73.0	74.0	74.8	71.5	32.56	-
22	74.3	74.3	74.5	74.4	77.7	71.0	32.87	36.07
23	82.0	81.8	80.4	79.4	77.0	76.7	36.07	-
24	75.0	80.3	79.2	74.7	68.0	63.0	35.46	-
25	75.0	75.1	75.5	76.5	73.0	64.1	33.39	-
26	76.8	76.8	77.5	77.5	77.3	76.1	34.73	-
27	70.6	70.5	70.2	69.5	69.5	75.0	32.59	-
28	69.9	69.8	69.6	69.1	69.3	72.2	.17	-
29	69.5	68.9	68.8	68.4	70.0	70.8	.14	33.82
30	70.2	68.7	68.1	67.1	69.0	73.8	32.00	-
31								
Mean	76.6	76.5	76.0	74.1	70.7	66.5	33.30	34.31

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

October 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	70.7	69.7	71.6	68.2	75.0	75.5	32.06	-
2	71.5	71.3	71.1	72.1	75.7	75.5	.28	-
3	70.9	71.2	71.1	71.9	76.1	73.1	.66	-
4	71.9	70.9	71.6	78.3	76.9	73.1	32.36	-
5	71.1	70.9	71.8	75.9	76.0	70.1	31.67	-
6	72.0	71.9	72.3	75.1	76.7	68.0	.83	32.64
7	71.2	71.2	76.2	78.2	74.2	67.6	31.92	-
8	71.2	71.1	70.9	74.0	75.9	71.6	32.34	-
9	72.3	71.0	71.4	75.8	72.1	62.4	.51	-
10	-	-	-	-	-	-	.48	-
11	69.0	68.9	69.0	69.6	70.4	74.8	.46	-
12	68.8	68.8	69.2	74.7	77.8	76.2	.30	-
13	67.4	67.2	67.1	67.1	74.7	76.5	32.34	35.98
14	67.1	67.1	68.2	75.8	77.4	75.0	31.92	-
15	73.9	75.2	77.1	78.4	75.1	72.3	34.36	-
16	-	-	-	-	-	-	-	-
17	67.0	67.3	71.9	76.3	77.6	77.0	31.24	-
18	73.9	74.4	75.6	77.9	76.1	72.4	-	-
19	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-
21	65.9	65.9	67.4	75.4	-	-	31.84	34.49
22	67.1	78.2	78.3	78.3	76.5	70.1	31.26	-
23	67.2	67.8	67.9	77.9	77.1	67.5	30.31	-
24	66.9	69.3	70.7	76.6	77.1	70.0	30.44	-
25	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-
27	63.9	63.9	63.8	63.2	63.2	66.0	32.15	32.94
28	-	-	-	-	-	-	-	-
29	63.9	63.8	63.8	63.3	63.1	-	31.84	-
30	63.9	63.9	63.4	63.2	63.1	68.0	31.70	-
31	65.1	63.9	63.8	63.9	76.9	-	31.07	-
Mean	68.9	69.4	70.2	73.0	74.1	71.6	31.97	34.01

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

November 1956

Depth / Day	Temperature °F 0'	30'	50'	100'	150'	200'	Salinity °/oo 0'	200'
1	66.0	65.2	65.0	64.7	74.0	76.0	31.51	-
2	67.0	67.0	67.2	69.5	73.7	75.9	31.47	-
3	68.5	69.2	75.0	78.2	77.6	79.2	32.74	-
4	65.1	65.1	65.0	66.8	77.0	77.5	31.63	36.24
5	63.9	63.9	63.8	66.5	73.6	77.0	.22	-
6	63.8	63.5	63.3	63.4	62.8	69.0	.36	-
7	64.	-	-	-	-	-	31.52	-
8	63.0	75.8	77.6	77.8	77.1	76.0	30.92	-
9	-	-	-	-	-	-	-	-
10	64.0	65.3	67.3	73.2	73.9	73.4	32.22	36.01
11	65.0	76.5	76.4	76.2	75.7	74.1	30.92	-
12	-	-	-	-	-	-	-	-
13	70.2	70.3	70.8	72.1	72.4	64.5	34.46	-
14	68.2	69.0	69.7	72.0	67.8	66.1	33.58	-
15	65.9	68.0	69.5	73.0	63.1	59.9	32.08	-
16	68.1	68.7	69.8	73.0	61.6	59.4	33.58	35.92
17	67.8	68.5	69.3	69.8	62.5	58.5	32.99	-
18	-	-	-	-	-	-	-	-
19	67.1	67.1	67.3	69.0	69.1	69.0	33.85	-
20	67.	-	-	-	-	-	33.47	-
21	67.2	67.2	68.1	75.9	71.7	71.6	33.76	-
22	71.1	71.0	71.0	71.9	74.0	-	34.87	-
23	76.3	76.2	76.1	75.8	75.1	-	36.21	-
24	74.0	74.0	74.0	74.0	73.5	71.3	.17	36.20
25	73.5	73.3	73.2	72.9	72.1	69.8	36.18	-
26	64.0	64.4	65.6	71.0	71.5	66.9	33.69	-
27	64.6	64.6	64.6	67.5	69.5	69.9	33.87	-
28	59.0	59.0	60.9	68.5	69.1	69.1	32.92	-
29	59.6	59.7	62.1	66.3	69.9	64.8	32.67	-
30	66.2	66.1	66.1	66.0	65.9	57.0	34.82	35.22
31								
Mean	66.7	67.9	68.7	71.0	71.0	69.4	33.14	35.92

Table 15 (cont'd)

DIAMOND SHOALS LIGHTSHIP 35°05'30"N. 75°19'30"W. Depth of water - 200 feet

December 1956

Depth / Day	Temperature °F						Salinity °/oo	
	0'	30'	50'	100'	150'	200'	0'	200'
1	59.3	60.1	61.2	62.0	62.7	62.3	32.64	-
2	70.2	70.2	69.9	66.3	63.7	61.8	35.33	-
3	65.5	65.5	66.1	63.7	61.0	59.0	34.33	-
4	59.8	60.2	61.2	62.7	63.2	58.0	-	-
5	66.8	65.8	65.0	63.9	63.2	61.3	34.84	-
6	59.6	61.4	62.5	63.7	62.9	61.6	33.29	-
7	60.3	69.1	69.2	69.4	66.5	61.3	-	-
8	65.2	68.8	71.0	70.5	61.3	58.9	-	-
9	68.	-	-	-	-	-	34.82	-
10	60.6	60.6	60.6	61.3	62.4	62.9	34.12	-
11	68.3	68.5	68.4	66.9	63.4	63.1	35.46	-
12	63.8	65.3	70.3	63.3	62.3	62.2	34.16	-
13	61.0	60.6	61.3	64.1	64.2	62.5	32.94	-
14	68.8	68.8	69.0	69.2	62.3	61.9	34.15	35.95
15	63.6	63.6	63.5	63.0	63.1	62.9	33.54	-
16	65.0	65.2	65.3	61.7	63.9	63.6	32.65	-
17	59.3	59.1	59.2	60.4	62.0	63.8	32.04	-
18	59.6	59.5	59.6	60.6	63.0	64.0	-	-
19	59.2	59.1	59.2	59.6	60.6	63.5	32.82	-
20	61.0	59.8	67.7	68.6	64.8	64.2	33.13	-
21	71.9	71.9	71.9	71.5	65.0	62.9	-	-
22	60.8	60.8	62.0	65.2	66.1	63.5	32.68	-
23	64.2	64.2	67.3	68.5	67.4	66.0	33.72	-
24	60.0	59.9	59.4	60.7	67.8	66.9	33.09	-
25	58.2	58.1	58.9	62.8	62.7	66.5	32.42	-
26	57.0	57.8	58.0	58.3	63.0	-	31.91	-
27	59.3	59.3	59.2	65.2	62.8	62.8	32.40	-
28	61.3	61.3	62.7	64.3	65.2	64.5	-	-
29	62.1	62.1	62.1	65.0	64.4	62.5	-	-
30	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-
Mean	62.7	63.1	64.0	64.4	63.6	62.8	33.48	(35.95)

Frying Pan Shoals Lightship

Surface temperatures tended to lag below the mean for the period of record (1947-1956) during the first half of the year except for mid-February. The latter two-thirds of November tended well below the mean and the latter two-thirds of December tended well above.

Minimum temperatures of less than 59°F were observed in January. Maximum at the surface, greater than 81°F was reached in late August and early September, at the bottom, 81°F at the same time. The thermocline did not become as well developed at this location as it did north of Cape Hatteras. The maximum gradient, surface to bottom (70 feet) was never more than 9°F. The thermocline commenced development in late April, yet during the first-third of June the water column was again virtually isothermal. The strong thermocline during the latter part of July was apparently due to a transgression of colder water from offshore.

The surface and bottom salinities seldom differed by more than 1°/oo and remained very close to 36°/oo except during November when the salinity of the whole water column dropped to about 34°/oo. This was coupled with a depression in the temperature of the whole water column, followed by a return to higher salinity and temperature in December. It appears that two unusual phenomena were involved here at nearly the same time. First there was a transgression of less saline water followed by colder than normal weather causing a depression in water temperatures. The extremely warm air temperatures enjoyed by the south eastern seaboard were reflected in the rise in water temperature in December.

It is difficult to believe that the depression in salinity throughout the whole water column was due to the off-shore movement of coastal water, as a relatively shallow volume of such water when mixed with a deeper, larger volume in the proportions available would not produce such a marked salinity depression. In consideration of the wind systems prevalent at the time, we suspect this to be a parcel of coastal water from north of Cape Hatteras carried southwesterly by a long period of predominantly northerly and northeasterly winds. The speed of movement of this parcel from Hatteras to the Lightship may have been on the order of 7 - 8 miles per day. This phenomenon has previously been postulated by Bumpus and Pierce (1955, pp. 95 and 96).

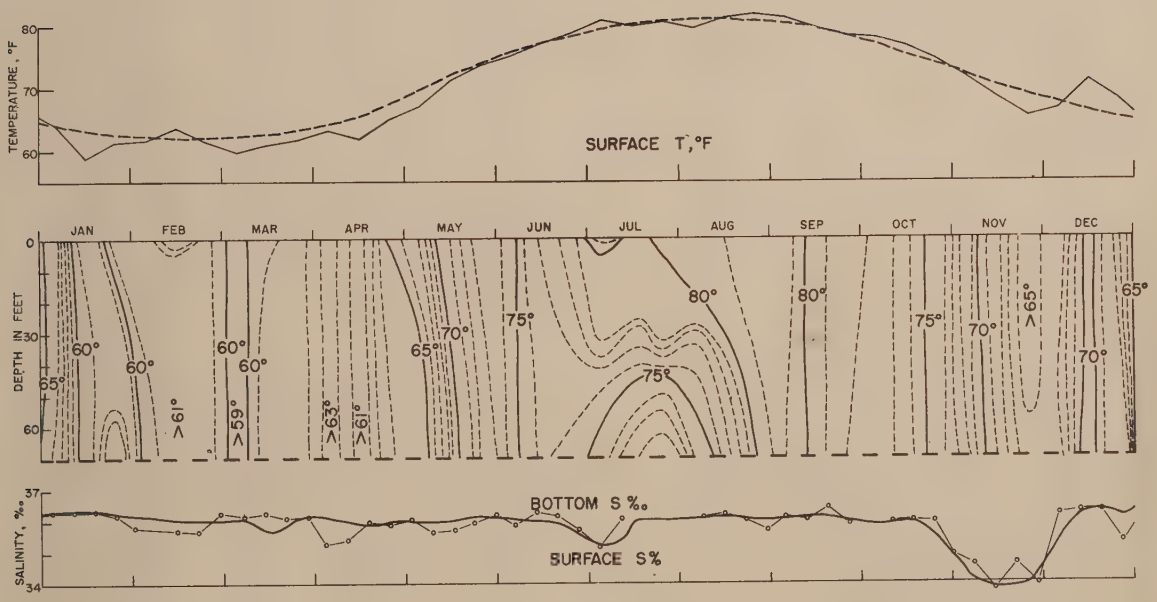

Figure 17. Frying Pan Shoals Lightship, 1956. (Dashed line in upper diagram, mean for period 1947-1956)

Table 16

FRYING PAN SHOALS LIGHTSHIP 33°28'00"N. 77°33'08"W. Depth of water - 72 feet

1955

	November						December					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1							62.2	62.2	62.2	62.2	35.88	-
2							69.0	67.6	67.1	66.9	36.27	-
3							73.1	73.1	73.1	73.1	.24	-
4							73.9	73.7	73.7	73.7	.24	-
5							74.4	74.1	74.0	74.0	.19	-
6							73.5	73.5	73.4	73.3	.20	-
7							73.9	73.6	73.6	73.0	.12	36.14
8							75.1	75.1	70.9	66.6	.10	-
9							74.6	74.6	72.3	66.3	.07	-
10							67.2	67.2	67.1	67.1	.06	-
11							68.8	68.8	67.2	65.9	.20	-
12							64.9	64.7	64.7	64.6	.31	-
13							62.6	62.5	62.5	62.6	.08	-
14							60.3	60.3	60.3	60.3	.18	36.18
15							70.3	70.2	62.0	60.9	.19	-
16							63.4	63.6	63.6	63.6	.21	-
17							66.9	66.7	66.4	65.9	.24	-
18							69.3	69.1	67.9	67.4	.24	-
19							66.2	66.2	66.2	66.2	.26	-
20							66.3	66.3	66.3	66.3	.28	-
21							72.7	72.6	72.6	68.3	.10	36.23
22							70.7	70.7	70.5	70.5	.16	-
23							71.7	71.7	71.7	71.7	.13	-
24							70.3	70.3	70.3	70.3	.18	-
25							68.5	68.3	68.3	68.3	.26	-
26							64.7	64.7	64.7	64.7	.19	-
27							65.6	65.6	65.5	65.5	.24	-
28							66.4	66.5	66.6	66.6	.28	36.26
29							60.1	60.1	59.6	59.6	.31	-
30	63.2	63.0	63.0	63.0	35.88	35.85	61.1	61.0	60.9	60.9	.33	-
31							63.1	63.1	62.7	62.0	.26	-
Mean							68.0	68.0	67.3	66.7	36.19	36.20

Table 16 (cont'd)

FRYING PAN SHOALS LIGHTSHIP 33°28'00"N. 77°33'08"W. Depth of water - 72 feet

1956

	January						February					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1	66.0	68.1	68.0	68.0	36.26	-	55.2	-	-	-	35.85	35.84
2	66.9	66.8	66.8	66.7	.32	-	64.	-	-	-	36.14	-
3	66.0	65.9	66.0	66.0	.32	-	54.5	-	-	-	36.65	-
4	67.2	67.2	67.2	67.2	.35	36.34	55.	-	-	-	35.83	-
5	63.1	63.1	63.1	63.1	.37	-	65.1	-	-	-	36.17	-
6	60.2	58.8	58.3	58.3	.33	-	67.	-	-	-	.30	-
7	68.8	66.4	63.2	60.9	.28	-	64.5	-	-	-	.20	-
8	67.5	67.5	67.4	67.4	.28	-	65.	-	-	-	.16	-
9	55.8	58.2	58.2	58.2	.37	-	63.	-	-	-	.21	-
10	62.4	64.1	64.2	63.2	.34	-	64.	-	-	-	.29	-
11	63.0	63.0	63.0	63.1	.31	36.30	68.	-	-	-	.26	-
12	64.9	64.9	64.9	64.9	.30	-	62.	-	-	-	.22	-
13	60.9	61.9	62.0	62.0	.55	-	61.	-	-	-	36.16	-
14	61.9	61.9	61.9	61.9	.56	-	60.	-	-	-	34.36	-
15	57.0	58.7	57.7	57.6	.34	-	56.	-	-	-	35.64	35.71
16	60.3	60.2	60.1	60.1	.36	-	65.	-	-	-	36.32	-
17	56.9	58.1	58.1	58.0	.42	-	63.	-	-	-	.35	-
18	60.0	59.9	59.8	59.8	36.46	36.38	73.	-	-	-	.24	-
19	49.1	50.0	51.1	52.9	35.63	-	63.	-	-	-	.34	-
20	53.8	53.7	53.3	52.9	36.35	-	65.	-	-	-	36.35	-
21	51.3	51.1	51.0	50.5	.17	-	60.	-	-	-	35.60	-
22	-	-	-	-	.38	-	59.8	60.0	60.0	60.0	.69	35.69
23	68.9	68.8	68.1	58.5	.23	-	59.0	59.0	59.1	59.0	35.42	-
24	61.2	61.2	61.2	61.2	.22	-	62.8	62.8	62.8	62.8	36.16	-
25	57.8	54.8	54.0	54.1	.20	36.20	67.2	67.2	67.2	67.2	.41	-
26	56.8	56.8	56.7	56.7	.05	-	61.9	62.0	62.0	62.1	.32	-
27	-	-	-	-	.05	-	61.7	61.7	61.8	61.8	.30	-
28	65.	-	-	-	.32	-	61.5	61.7	61.8	61.8	.32	-
29	64.	-	-	-	-	-	59.2	59.3	59.4	59.4	.26	36.26
30	64.5	-	-	-	.38							
31	63.	-	-	-	.31							
Mean	61.5	61.2	61.0	60.5	36.29	36.31	62.3	(61.7)	(61.8)	(61.8)	36.08	35.87

Table 16 (cont'd)

FRYING PAN SHOALS LIGHTSHIP 33°28'00"N. 77°33'08"W. Depth of water - 72 feet

1956

	March						April					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1	57.0	56.8	56.8	56.8	35.96	-	64.2	64.1	64.0	63.9	36.21	-
2	57.0	57.1	57.2	57.2	-	-	66.7	66.2	66.1	66.1	.49	-
3	59.2	58.8	58.6	58.6	36.22	-	66.6	66.6	66.5	66.5	.37	-
4	60.5	60.5	60.5	60.5	.21	-	60.5	60.9	60.9	60.9	-	35.27
5	58.8	58.9	59.0	59.0	.36	-	64.0	64.0	64.0	64.0	36.00	-
6	60.7	60.4	60.3	-	.20	-	61.0	61.3	62.2	62.6	35.52	-
7	60.5	60.5	60.5	60.5	.14	36.14	63.8	63.9	63.9	63.9	36.12	-
8	62.8	62.8	62.9	62.9	36.29	-	62.5	62.7	62.7	62.7	.10	-
9	59.9	60.0	60.0	60.0	35.79	-	61.5	61.5	61.5	61.5	36.06	-
10	60.0	60.0	60.0	-	35.69	-	61.7	61.6	61.6	61.6	35.88	-
11	61.0	61.9	62.2	62.3	36.24	-	60.0	60.0	60.1	60.1	.41	35.40
12	60.2	62.0	62.3	62.4	34.50	-	60.1	60.2	60.2	60.2	.66	-
13	63.1	63.1	63.1	63.1	36.15	-	62.8	62.3	62.3	62.5	.70	-
14	64.2	64.2	64.2	64.2	.24	36.26	63.0	62.8	62.9	62.9	.88	-
15	64.2	64.2	64.2	64.2	.33	-	62.5	62.5	62.5	62.6	.98	-
16	60.7	60.1	59.5	59.0	35.16	-	62.7	62.6	62.5	62.7	.97	-
17	59.9	60.0	60.0	60.0	.53	-	62.5	62.5	62.6	62.7	.96	-
18	57.2	57.2	57.4	60.0	.03	-	62.2	62.1	62.1	62.1	.82	35.98
19	59.9	59.9	60.0	60.0	.70	-	61.3	61.4	61.4	61.5	.97	-
20	57.5	57.6	57.5	57.5	35.30	-	61.9	61.9	61.9	61.9	.97	-
21	62.4	62.5	62.5	62.5	36.17	36.11	61.5	61.7	61.7	61.7	.93	-
22	59.7	59.5	59.5	59.5	.02	-	61.5	61.5	61.5	61.5	-	-
23	60.3	60.1	60.1	60.1	.07	-	62.3	62.3	62.3	62.3	.87	-
24	61.3	61.3	61.3	61.3	.09	-	61.8	61.9	61.9	61.9	.78	-
25	59.8	59.9	59.9	60.0	.16	-	61.9	62.0	62.0	62.0	35.77	35.85
26	59.8	59.9	59.9	59.9	36.12	-	70.2	68.7	64.0	62.5	36.33	-
27	58.6	59.0	59.0	59.0	35.88	-	69.8	67.9	67.5	67.4	.31	-
28	61.2	61.2	61.2	61.2	36.15	36.14	66.9	66.8	66.8	66.8	.15	-
29	68.4	68.3	62.0	60.7	.22	-	67.5	66.6	66.3	66.3	36.18	-
30	64.8	64.9	64.9	64.9	.28	-	66.8	66.2	66.2	66.2	35.94	-
31	62.0	62.0	62.0	62.0	.20	-						
Mean	60.7	60.8	60.6	60.7	35.95	36.16	63.4	63.2	63.1	63.0	35.98	35.62

Table 16 (cont'd)

FRYING PAN SHOALS LIGHTSHIP 33°28'00"N. 77°33'08"W. Depth of water - 72 feet

1956

	May						June					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1	64.2	63.8	63.7	63.7	36.07	-	74.7	74.3	74.1	74.0	36.00	-
2	68.	-	-	-	36.20	36.07	75.	-	-	-	35.92	-
3	-	-	-	-	.18	-	75.5	75.2	75.1	75.1	36.07	-
4	68.0	67.0	65.1	65.2	.12	-	75.1	75.0	75.0	75.0	36.00	-
5	65.0	65.0	64.9	64.8	.05	-	74.	-	-	-	-	-
6	70.	-	-	-	.20	-	74.9	74.8	74.8	74.8	35.96	35.87
7	68.	-	-	-	36.06	-	74.8	74.9	74.8	74.8	36.07	-
8	64.3	64.5	64.5	64.5	35.23	-	74.1	74.0	73.9	73.9	35.91	-
9	63.4	63.5	63.4	63.4	.65	35.65	75.1	74.5	74.4	74.4	35.98	-
10	71.9	66.3	65.4	65.4	36.13	-	76.	-	-	-	36.13	-
11	73.0	73.0	73.0	73.0	.17	-	76.	-	-	-	.13	-
12	70.0	69.2	69.1	69.0	.10	-	77.2	76.4	76.4	76.3	.15	-
13	69.2	69.2	69.2	69.2	.03	-	77.5	77.2	77.1	77.1	36.16	36.27
14	70.5	70.7	70.7	70.7	36.16	-	77.2	-	-	-	35.89	-
15	69.8	69.5	69.5	69.5	35.94	-	77.9	77.4	77.3	-	.37	-
16	74.	-	-	-	.78	35.74	78.0	76.9	76.8	76.8	.89	-
17	68.2	67.8	67.5	67.5	.66	-	77.	-	-	-	.86	-
18	68.9	68.9	67.0	67.0	35.83	-	77.2	76.0	-	-	.97	-
19	71.5	70.3	68.9	68.9	36.12	-	76.0	75.9	75.8	75.5	35.88	-
20	75.0	71.4	69.8	69.7	35.95	-	77.9	77.9	77.9	-	36.11	36.16
21	70.2	69.4	67.8	67.9	35.95	-	77.	-	-	-	.17	-
22	70.5	-	-	-	36.22	-	78.0	77.8	77.7	77.7	.18	-
23	78.5	-	-	-	.04	35.92	-	-	-	-	.09	-
24	74.3	74.3	74.1	73.8	.06	-	77.	-	-	-	36.10	-
25	73.5	73.5	73.6	73.7	.14	-	78.	-	-	-	35.44	-
26	73.5	73.5	73.5	73.5	.60	-	79.0	77.0	-	-	.62	-
27	73.8	73.8	73.8	73.8	.13	-	79.3	79.2	78.3	77.4	.48	35.68
28	76.	-	-	-	36.16	-	79.3	77.8	75.4	75.2	.13	-
29	71.2	71.2	71.2	71.2	35.86	-	79.5	76.3	74.5	74.4	.12	-
30	73.5	73.5	73.5	73.5	36.16	36.19	80.	-	-	-	35.03	-
31	74.	-	-	-	36.20	-						
Mean	70.7	69.5	69.1	69.0	36.04	35.91	76.9	76.2	75.8	75.5	35.86	36.00

Table 16 (cont'd)

FRYING PAN SHOALS LIGHTSHIP 33°28'00"N. 77°33'08"W. Depth of water - 72 feet

1956

	July						August					
	Temperature °F				Salinity °/oo		Temperature °F				Salinity °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1	79.8	79.3	75.2	74.5	34.44	-	80.0	73.2	69.8	69.9	35.90	36.18
2	82.1	81.8	75.7	75.2	34.98	-	-	-	-	-	.82	-
3	80.9	80.1	75.9	73.8	35.10	-	80.6	80.1	75.5	72.9	35.76	-
4	80.7	80.5	75.9	73.9	.12	35.13	79.8	78.3	74.2	74.0	36.12	-
5	81.	-	-	-	.14	-	79.3	79.0	74.1	73.9	.10	-
6	81.	-	-	-	.46	-	77.9	77.9	77.9	77.9	.26	-
7	81.1	77.8	75.3	74.8	.38	-	78.1	78.0	78.0	78.0	36.11	-
8	80.	-	-	-	.36	-	78.9	78.8	76.7	76.1	35.98	36.08
9	80.	-	-	-	.36	-	79.9	75.1	73.9	73.8	36.00	-
10	79.	-	-	-	35.28	-	79.8	76.4	76.1	76.0	.13	-
11	80.	-	-	-	36.08	36.05	79.9	78.9	75.7	75.1	.14	-
12	80.7	79.4	77.1	76.6	35.52	-	79.9	78.8	77.1	75.0	.14	-
13	80.	-	-	-	.56	-	81.4	80.2	77.6	76.1	.12	-
14	80.	-	-	-	35.84	-	80.8	80.3	77.8	76.0	.04	-
15	78.2	77.0	74.5	71.0	36.06	-	81.1	80.0	78.3	75.9	36.00	36.18
16	77.7	76.3	73.2	71.0	.06	-	80.8	80.3	78.0	78.0	.02	-
17	80.	-	-	-	.14	-	82.0	80.9	77.4	77.4	.12	-
18	79.	-	-	-	.16	-	81.9	80.8	78.1	77.9	.09	-
19	80.	-	-	-	36.14	-	80.2	80.1	80.0	79.9	.19	-
20	80.9	78.2	72.7	72.4	35.95	-	81.5	79.2	77.6	77.4	36.01	-
21	80.	-	-	-	.86	-	80.8	80.2	76.3	76.2	35.78	-
22	79.3	78.9	75.0	-	35.93	-	78.1	78.1	78.1	-	36.07	36.00
23	80.5	79.9	74.9	73.7	36.08	-	78.9	79.0	79.0	79.0	.12	-
24	81.1	79.3	72.9	72.5	.00	-	81.2	79.8	79.1	79.0	36.32	-
25	80.6	80.5	71.6	71.0	.02	-	83.1	82.3	80.8	-	35.88	-
26	81.1	81.0	80.6	-	.08	-	83.0	82.9	80.2	-	.94	-
27	80.9	79.9	72.9	70.5	36.06	-	83.9	83.8	83.1	83.1	.57	-
28	81.1	73.9	71.0	70.9	35.82	-	83.2	83.1	82.4	82.1	.95	-
29	79.	-	-	-	.93	-	83.1	82.8	82.7	81.1	.61	35.66
30	80.9	79.7	73.0	-	.92	-	81.9	81.5	79.9	79.5	35.95	-
31	80.0	-	-	-	35.95	-	-	-	-	-	36.12	-
Mean	80.2	79.0	74.6	73.0	35.79		80.7	79.6	77.8	77.0	36.01	36.02

Table 16 (cont'd)

FRYING PAN SHOALS LIGHTSHIP 33°28'00"N. 77°33'08"W. Depth of water - 72 feet

1956

Day	September Temperature °F 0'	30'	50'	70'	Salinity °/oo 0'	70'	October Temperature °F 0'	30'	50'	70'	Salinity °/oo 0'	70'
1	81.4	81.2	81.1	81.1	36.17	-	78.	-	-	-	35.95	-
2	81.0	80.9	80.8	80.7	.04	-	77.9	77.8	77.7	77.7	.94	-
3	81.2	81.0	81.0	81.0	.11	-	78.1	77.8	77.8	77.8	.78	34.28
4	81.8	81.4	81.3	81.2	.10	-	78.5	78.4	78.3	78.3	.91	-
5	81.1	81.1	81.1	80.9	.12	36.01	78.1	78.1	78.1	78.1	.80	-
6	81.3	81.3	81.0	81.0	.12	-	78.4	78.4	78.4	78.4	.80	-
7	81.2	81.0	80.9	80.9	.02	-	77.9	77.7	77.6	77.6	.81	-
8	81.5	81.5	81.5	-	.10	-	77.4	77.3	77.3	77.3	.83	-
9	-	-	-	-	36.08	-	77.5	77.4	77.5	77.5	.92	-
10	80.6	80.6	80.6	80.9	-	-	77.2	77.2	77.2	77.2	.91	35.90
11	79.7	79.8	79.8	79.8	36.09	-	76.4	76.4	76.4	76.4	35.98	-
12	80.1	80.0	80.0	79.9	.02	36.00	75.9	76.0	75.9	76.0	36.09	-
13	79.9	79.7	79.6	-	.03	-	75.6	75.8	75.7	75.7	.10	-
14	80.4	80.1	80.0	80.0	.07	-	76.1	76.0	76.0	76.0	.07	-
15	80.5	80.4	80.5	80.4	.04	-	77.3	77.2	77.2	77.0	.05	-
16	79.0	78.8	78.8	78.8	.13	-	77.4	77.5	77.5	77.5	36.02	-
17	79.0	79.0	79.0	79.1	.17	-	77.5	77.5	77.6	77.6	35.98	35.97
18	78.8	78.7	78.7	-	.18	-	78.1	78.0	78.1	78.0	.99	-
19	78.5	78.5	78.6	78.6	.18	36.38	77.2	77.2	77.2	77.0	.96	-
20	79.0	78.7	78.6	78.6	.18	-	74.3	74.2	73.1	73.0	.82	-
21	78.5	78.5	78.5	78.5	.26	-	76.0	75.8	75.5	75.0	.69	-
22	78.2	78.1	78.1	78.0	.15	-	75.7	75.1	75.1	75.0	.80	-
23	-	-	-	-	.02	-	76.7	76.7	76.7	76.5	.78	-
24	79.0	78.9	78.8	-	36.13	-	76.4	76.5	76.5	76.4	.92	35.92
25	78.2	78.2	78.3	78.2	35.94	-	75.9	75.9	75.9	75.9	.94	-
26	78.6	78.5	78.5	78.5	.87	35.86	72.3	72.3	72.4	72.4	.69	-
27	78.5	78.5	78.4	78.3	.95	-	72.9	72.9	72.9	72.9	.82	-
28	78.1	77.6	77.3	77.2	.83	-	74.	-	-	-	35.61	-
29	77.7	77.7	77.5	-	35.91	-	73.4	73.4	73.5	73.5	34.06	-
30	77.3	77.2	77.3	77.4	36.13	-	72.5	73.1	73.1	73.1	.64	-
31							72.0	72.1	72.3	72.5	33.67	34.88
Mean	79.6	79.5	79.5	79.5	36.07	36.06	76.2	76.2	76.2	76.1	35.72	35.39

Table 16 (cont'd)

FRYING PAN SHOALS LIGHTSHIP 33°28'00"N. 77°33'08"W. Depth of water - 72 feet

1956

	November						December					
	Temperature °F				Salinity °/oo		Temperature °F				Salintiy °/oo	
Depth / Day	0'	30'	50'	70'	0'	70'	0'	30'	50'	70'	0'	70'
1	72.2	72.3	72.6	72.6	33.83	-	63.8	63.8	63.8	63.8	34.41	-
2	72.1	72.4	72.7	72.7	33.85	-	63.8	63.8	63.8	63.8	34.43	-
3	73.2	72.8	72.9	72.9	34.62	-	64.2	64.2	64.2	64.2	35.10	-
4	72.3	72.3	72.4	72.4	33.96	-	67.1	67.1	67.1	67.1	36.01	-
5	72.8	72.9	73.5	73.5	34.59	-	66.0	66.4	66.6	66.4	35.89	36.14
6	72.2	71.9	71.9	71.9	35.04	-	63.0	66.4	66.6	66.5	35.02	-
7	73.0	72.9	72.8	72.9	34.53	34.54	62.5	66.0	66.0	66.0	34.60	-
8	71.1	71.1	71.2	71.2	34.43	-	72.8	71.5	70.6	-	36.28	-
9	68.4	68.4	68.8	-	33.08	-	73.4	73.4	73.4	73.4	36.27	-
10	68.3	69.0	69.4	69.5	33.64	-	68.0	68.0	67.5	67.1	.27	-
11	69.1	69.3	69.6	69.6	34.13	-	70.5	70.1	68.6	68.5	.10	-
12	68.1	68.2	69.8	70.0	33.54	-	69.1	69.0	69.0	69.0	.21	36.28
13	67.6	67.6	67.8	-	33.51	-	71.2	71.2	71.2	71.2	.39	-
14	68.0	68.0	67.9	68.0	33.70	33.76	68.0	68.0	68.0	67.9	.31	-
15	68.6	68.6	68.7	69.0	33.76	-	69.6	69.6	69.4	69.4	.30	-
16	69.1	69.2	69.3	69.3	34.05	-	69.5	69.5	69.5	69.5	.31	-
17	67.9	68.8	69.0	69.0	34.60	-	70.5	70.5	70.5	70.5	.36	-
18	68.	-	-	-	33.40	-	72.9	72.9	72.9	72.9	.34	-
19	68.2	68.3	68.3	68.3	34.01	-	73.1	73.1	73.1	73.1	.30	36.27
20	68.7	68.6	68.7	68.7	33.92	-	75.2	75.2	75.2	75.2	.21	-
21	68.9	68.8	68.8	68.8	34.54	34.60	74.8	74.8	74.8	74.8	.25	-
22	69.	-	-	-	34.62	-	73.2	73.2	73.2	73.2	.22	-
23	65.8	65.8	65.8	65.8	33.71	-	72.2	72.1	72.0	71.8	.35	-
24	64.9	66.6	67.5	67.5	33.25	-	71.5	71.5	71.5	71.5	.28	-
25	62.8	62.8	64.3	65.1	32.66	-	72.	-	-	-	36.31	-
26	63.4	67.2	67.3	67.5	33.30	-	63.8	64.2	65.2	65.2	35.05	35.27
27	67.1	67.2	67.2	67.2	35.11	-	64.6	64.8	64.8	64.8	35.72	-
28	63.1	63.2	63.2	64.9	33.36	33.90	65.8	65.8	65.8	65.8	36.18	-
29	64.1	64.1	64.1	64.1	34.24	-	63.	-	-	-	.32	-
30	63.8	63.6	63.5	63.6	34.41	-	62.4	62.4	62.4	62.4	36.38	-
31							63.1	63.1	63.1	63.1	-	-
Mean	68.4	68.6	68.9	69.1	33.98	34.20	68.4	68.7	68.6	68.2	35.94	35.99

Savannah Lightship

Surface water temperatures at Savannah Lightship exhibited little departure from the mean for the period of record except for a warm March, slow April, cold last two-thirds of November and warm December.

Minimum temperatures of approximately 48°F apparently occurred in January (Observations did not start at this station until 18 January) and reached a maximum at the surface of less than 85°F in mid-August, and a maximum at the bottom of 84°F at the same time. The water was nearly isothermal at this shallow station throughout the year, seldom having a gradient, surface to bottom (48 feet) of greater than 2°F. Exceptions occurred in May when the surface warmed up temporarily ahead of the underlying water.

The surface salinity was depressed, March - June to approximately 34°/oo, increased to 36°/oo in July, gradually declined to 35°/oo at year end. Bottom salinity was slightly greater than the surface salinity during the first half of the year, but was essentially identical during the second half.

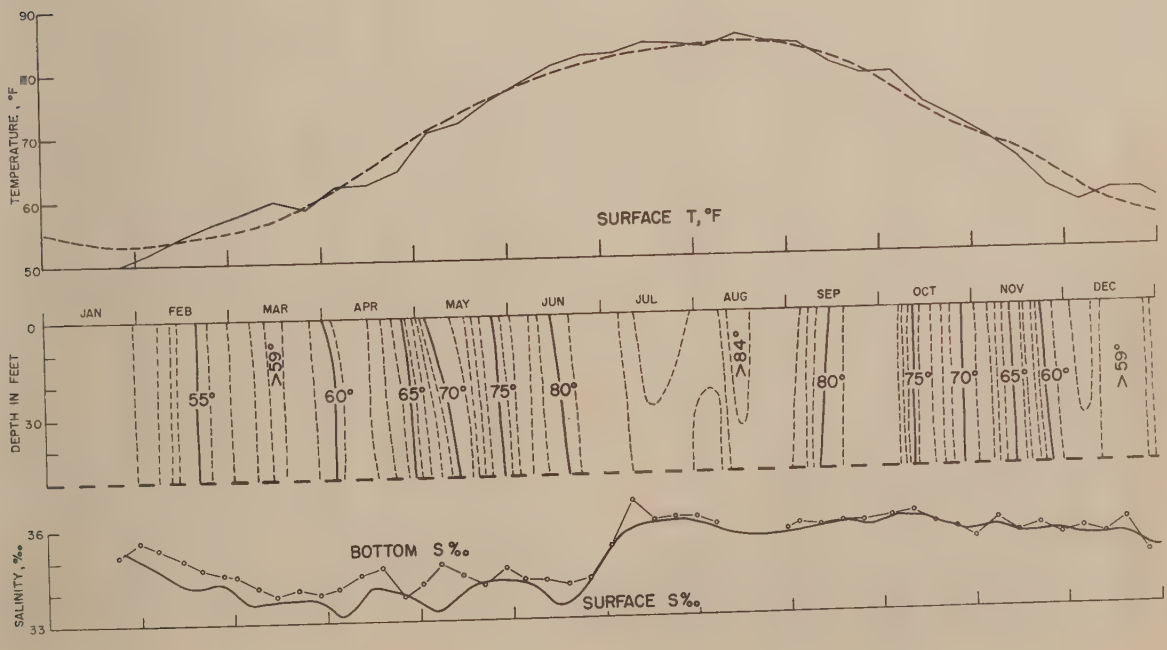

Figure 18. Savannah Lightship, 1956. (Dashed line in upper diagram, mean for period 1947-1955)

Table 17

SAVANNAH LIGHTSHIP 31°56.5'N. 80°39.6'W. Depth of water - 72 feet

1956

Depth / Day	January Temperature °F 0'	30'	48'	Salinity °/oo 0'	48'	February Temperature °F 0'	30'	48'	Salinity °/oo 0'	48'
1	-	-	-	-	-	50.9	50.9	50.8	35.36	-
2	-	-	-	-	-	51.0	50.8	50.8	.33	-
3	-	-	-	-	-	51.0	51.0	51.0	.10	-
4	-	-	-	-	-	51.0	51.3	51.5	.07	-
5	-	-	-	-	-	51.8	51.5	51.2	35.72	-
6	-	-	-	-	-	51.8	51.8	51.5	34.95	35.39
7	-	-	-	-	-	52.0	52.0	51.9	33.49	-
8	-	-	-	-	-	53.6	52.3	52.5	33.12	-
9	-	-	-	-	-	52.8	52.6	52.5	34.93	-
10	-	-	-	-	-	52.8	52.6	52.7	.85	-
11	-	-	-	-	-	52.8	52.7	52.5	.77	-
12	-	-	-	-	-	53.0	52.7	53.1	.38	-
13	-	-	-	-	-	53.0	53.0	53.5	34.48	-
14	-	-	-	-	-	54.0	54.0	53.7	33.83	35.04
15	-	-	-	-	-	54.0	54.0	54.1	34.61	-
16	-	-	-	-	-	54.7	54.7	54.7	33.32	-
17	-	-	-	-	-	53.9	53.9	54.0	34.49	-
18	47.7	49.0	49.0	34.05	34.74	54.5	53.8	53.7	34.39	-
19	48.8	48.9	48.8	.57	-	56.0	55.7	55.7	33.58	-
20	49.0	-	-	.08	-	56.9	56.1	55.7	33.91	34.72
21	49.0	-	-	.72	-	55.5	55.5	55.8	34.42	-
22	48.7	48.7	48.6	.40	-	55.0	54.7	55.0	33.76	-
23	49.6	49.4	49.2	34.99	35.20	55.4	55.2	55.2	34.21	-
24	50.0	50.1	50.1	35.41	-	55.2	54.9	55.1	.14	-
25	49.8	50.8	51.3	.31	-	56.0	56.0	55.0	.20	-
26	50.1	50.1	50.1	.51	-	56.7	56.7	56.7	.30	-
27	50.3	50.3	50.8	.50	-	56.8	56.8	56.8	.55	34.55
28	51.1	51.2	51.2	.87	-	57.7	57.5	57.6	.52	-
29	49.4	49.5	49.7	.21	-	57.4	57.4	57.4	.56	-
30	51.1	50.8	50.9	.69	35.64	-	-	-	-	-
31	51.3	51.5	51.7	.69	-	-	-	-	-	-
Mean						54.0	53.9	53.8	34.42	34.92

Table 17 (cont'd)

SAVANNAH LIGHTSHIP 31°56.5'N. 80°39.6'W. Depth of water - 72 feet

1956

	March					April				
	Temperature °F			Salinity °/oo		Temperature °F			Salinity °/oo	
Depth / Day	0'	30'	48'	0'	48'	0'	30'	48'	0'	48'
1	56.2	56.4	56.4	34.44	34.49	59.7	59.6	59.5	33.71	-
2	57.0	57.0	57.0	34.28	-	60.8	60.1	60.2	33.50	-
3	57.0	-	-	33.25	-	62.5	59.6	59.5	32.87	-
4	57.3	57.4	57.5	33.58	-	62.0	60.6	60.4	.20	34.07
5	57.5	57.5	57.5	.33	-	62.5	60.5	60.5	.66	-
6	58.0	57.4	57.4	33.41	-	63.8	60.9	60.9	.02	-
7	59.5	57.8	57.5	32.44	-	62.8	61.3	61.2	32.23	-
8	58.8	58.5	57.8	33.64	34.12	61.8	62.1	62.3	33.94	-
9	58.0	58.1	58.1	33.79	-	61.7	61.7	61.7	34.51	-
10	58.3	58.3	58.3	33.96	-	61.6	61.6	61.6	.33	-
11	58.5	58.3	58.3	33.75	-	61.5	-	-	.39	34.48
12	59.0	59.0	59.0	.91	-	60.9	60.8	60.8	.49	-
13	59.0	59.0	59.0	.84	-	61.5	61.1	61.4	.52	-
14	59.8	-	-	.85	33.87	61.6	61.5	61.5	.54	-
15	61.0	60.3	60.3	.29	-	62.0	62.1	62.2	.68	-
16	60.5	60.5	60.5	.74	-	61.8	61.8	61.9	34.49	-
17	60.1	60.1	60.1	.64	-	62.1	62.2	62.5	33.81	-
18	59.8	59.8	59.8	.66	-	62.3	63.1	63.1	31.97	34.70
19	60.2	60.2	60.2	.72	-	63.5	62.9	63.0	34.14	-
20	59.1	59.1	59.1	.69	-	62.8	63.0	63.0	33.52	-
21	58.3	58.3	58.0	34.07	34.06	62.7	62.7	-	34.11	-
22	58.0	-	-	34.10	-	62.9	62.8	62.8	-	-
23	58.0	58.0	58.0	34.10	-	64.0	-	-	33.05	-
24	58.2	58.2	58.2	33.98	-	63.7	63.5	63.5	.43	-
25	58.0	58.0	57.9	34.10	-	63.8	63.8	63.8	83.72	33.74
26	58.0	38.0	58.0	33.76	-	63.5	63.5	63.4	34.48	-
27	58.0	58.0	58.0	33.91	-	64.1	64.0	64.0	34.48	-
28	58.5	58.3	58.3	33.11	33.90	64.9	64.2	64.2	33.92	-
29	58.5	-	-	.76	-	65.8	64.2	-	.67	-
30	59.5	59.0	59.0	.09	-	66.0	65.1	65.1	33.53	-
31	59.4	59.4	59.4	.31	-	-	-	-	-	-
Mean	58.6	58.5	58.5	33.73	34.09	62.7	62.2	62.1	33.69	34.25

Table 17 (cont'd)

SAVANNAH LIGHTSHIP 31°56.5'N. 80°39.6'W. Depth of water - 72 feet

1956

Depth / Day	May Temperature °F 0'	30'	48'	May Salinity °/oo 0'	48'	June Temperature °F 0'	30'	48'	June Salinity °/oo 0'	48'
1	69.1	66.3	66.2	32.59	34.15	77.3	76.9	76.8	34.14	-
2	72.7	-	-	31.88	-	77.8	77.5	77.4	33.68	-
3	70.2	66.9	67.0	33.04	-	77.7	77.2	77.3	33.76	-
4	71.	-	-	32.73	-	78.0	77.6	77.4	34.21	34.24
5	71.9	67.1	67.1	.68	-	77.5	77.7	77.3	.21	-
6	70.9	67.3	67.2	32.84	-	77.5	77.4	77.0	-	-
7	72.4	67.4	67.4	33.04	34.78	77.2	77.0	76.9	.26	-
8	68.1	68.1	68.1	34.42	-	77.5	77.0	77.0	.42	-
9	67.2	67.2	67.1	.84	-	78.0	77.3	77.1	34.37	-
10	68.0	67.5	67.5	34.96	-	78.0	78.0	77.9	33.84	-
11	68.3	68.0	67.9	35.02	-	78.7	78.0	78.0	34.14	34.21
12	69.1	68.7	68.6	34.94	-	78.8	78.1	78.1	34.20	-
13	71.1	69.7	69.6	34.20	-	80.0	78.9	78.7	33.34	-
14	70.8	70.1	70.1	33.70	34.52	80.1	79.2	79.1	.36	-
15	73.2	70.9	70.9	32.90	-	80.2	79.3	79.2	.12	-
16	73.1	71.7	71.3	33.71	-	80.7	79.6	79.5	.06	-
17	72.4	72.3	71.9	.81	-	81.3	79.7	79.6	33.08	-
18	72.1	72.0	71.9	.49	-	82.5	80.0	80.0	32.53	34.08
19	-	-	-	-	-	81.0	80.8	80.6	33.42	-
20	73.8	72.2	72.2	.74	-	80.4	80.4	80.4	33.75	-
21	75.1	73.2	73.1	.57	34.12	80.5	80.2	80.0	34.03	-
22	74.1	73.1	73.1	.94	-	82.0	-	-	33.79	-
23	74.8	74.4	74.5	.96	-	81.4	-	-	33.82	-
24	76.3	75.5	75.3	33.79	-	82.0	81.7	81.7	34.03	-
25	75.1	75.9	75.9	34.85	-	81.6	81.4	81.4	34.23	34.25
26	74.0	73.9	73.8	.76	-	82.0	81.6	81.6	33.82	-
27	73.9	78.7	73.6	.79	-	81.7	81.6	81.5	34.22	-
28	75.4	74.0	74.0	.48	34.62	81.5	81.4	81.4	.52	-
29	75.2	74.4	74.1	.07	-	82.0	81.5	81.5	.98	-
30	74.5	73.9	73.7	34.40	-	82.3	82.0	82.0	34.60	-
31	76.8	74.1	74.1	33.85	-	-	-	-	-	-
Mean	72.4	71.0	70.9	33.83	34.44	79.9	79.2	79.2	33.89	34.20

Table 17 (cont'd)

SAVANNAH LIGHTSHIP 31°56.5'N. 80°39.6'W. Depth of water - 72 feet

1956

	July					August				
	Temperature °F			Salinity °/oo		Temperature °F			Salinity °/oo	
Depth / Day	0'	30'	48'	0'	48'	0'	30'	48'	0'	48'
1	80.1	80.1	80.1	34.80	-	82.0	81.2	81.0	36.08	-
2	82.0	81.1	81.1	35.18	35.23	83.5	81.4	81.0	35.22	-
3	81.5	81.4	81.1	35.49	-	82.9	81.6	81.3	.70	-
4	81.2	81.5	81.5	34.86	-	81.8	81.7	81.5	.60	-
5	82.1	81.7	81.6	35.17	-	81.2	80.5	80.3	.91	-
6	82.1	81.8	81.6	.39	-	82.7	81.6	81.3	.67	35.84
7	82.1	82.0	81.8	35.99	-	84.0	83.4	82.8	.62	-
8	82.6	82.4	82.2	36.16	-	83.5	83.0	82.9	.77	-
9	82.5	82.5	82.3	.24	36.64	82.8	82.3	82.3	.72	-
10	82.4	82.3	82.1	36.24	-	83.0	82.5	82.4	.92	-
11	82.3	82.1	82.1	35.78	-	83.7	83.0	82.9	.66	-
12	83.0	82.7	82.5	36.01	-	84.1	84.0	83.8	.42	-
13	83.1	82.7	82.5	36.08	-	34.8	84.3	83.9	.34	-
14	83.1	82.9	82.6	35.82	-	84.5	84.0	83.8	.45	-
15	83.7	83.3	83.2	.82	-	85.0	84.1	83.9	.52	-
16	83.2	83.0	83.0	.25	35.98	34.2	84.1	84.2	.69	-
17	84.0	83.4	82.9	.91	-	84.6	84.3	84.2	.60	-
18	85.2	82.7	82.6	35.82	-	84.9	84.3	84.0	35.53	-
19	83.9	83.5	82.8	36.16	-	84.9	84.7	84.3	34.71	-
20	83.6	83.3	83.2	36.19	-	85.2	84.3	84.1	35.42	-
21	83.3	83.7	83.4	35.83	-	84.1	84.1	83.9	.82	-
22	84.3	83.8	83.5	35.71	-	83.4	83.3	83.3	.74	-
23	84.7	83.6	83.4	36.08	36.07	83.0	83.0	83.0	.82	-
24	85.4	84.3	83.3	.07	-	83.5	83.1	83.0	.82	-
25	84.0	83.2	83.1	.14	-	83.8	83.3	83.2	.66	-
26	83.5	82.9	82.9	36.06	-	83.5	83.2	83.2	.44	-
27	83.9	82.5	82.0	35.90	-	84.0	83.7	83.7	.52	-
28	82.8	82.1	81.5	36.00	-	83.2	83.0	83.0	.41	-
29	82.2	81.6	80.3	35.96	-	83.0	83.0	82.9	35.30	35.62
30	80.7	80.0	-	36.00	36.08	82.7	82.7	82.7	33.81	-
31	82.0	81.5	80.2	35.95	-	83.1	82.8	82.5	35.38	-
Mean	82.9	82.5	82.2	35.81	36.00	83.6	83.1	82.9	35.52	-

Table 17 (cont'd)

SAVANNAH LIGHTSHIP 31°56.5'N. 80°39.6'W. Depth of water - 72 feet

1956

	September					October				
	Temperature °F			Salinity °/oo		Temperature °F			Salinity °/oo	
Depth / Day	0'	30'	48'	0'	48'	0'	30'	48'	0'	48'
1	-	-	-	-	-	-	-	-	-	-
2	83.8	83.0	83.0	34.72	-	77.2	77.1	77.2	35.87	-
3	84.5	84.0	84.0	35.77	35.80	77.9	77.9	77.9	35.90	-
4	83.9	83.3	83.3	-	-	78.2	78.1	78.1	36.01	-
5	83.2	83.1	83.1	.72	-	78.5	78.1	78.0	35.99	-
6	83.3	83.0	83.0	.62	-	79.0	79.0	79.0	36.00	-
7	83.5	83.1	83.1	.60	-	79.0	79.1	79.1	35.87	-
8	83.0	83.0	83.0	.71	-	77.9	77.9	77.9	35.90	-
9	81.5	81.5	81.3	.70	-	78.1	78.1	78.1	36.05	-
10	80.0	80.0	80.0	.76	35.71	77.9	72.9	77.9	36.08	36.09
11	79.5	79.6	79.5	.88	-	76.8	76.9	76.9	35.99	-
12	80.8	79.5	79.3	.89	-	75.5	75.7	75.7	35.77	-
13	79.5	79.4	79.3	.81	-	74.8	74.8	74.8	36.14	-
14	79.9	79.3	79.2	.88	-	73.8	73.9	73.9	36.20	-
15	79.8	79.5	79.4	.68	-	73.2	73.3	73.2	36.03	-
16	79.9	79.6	79.5	.72	-	72.5	72.6	72.6	35.75	-
17	80.3	79.8	79.5	.81	35.81	71.9	71.9	71.9	35.72	35.72
18	80.0	79.5	79.4	.72	-	71.6	71.7	71.8	35.53	-
19	79.9	79.4	79.3	.65	-	72.0	71.9	71.9	35.67	-
20	79.8	79.6	79.5	.66	-	71.9	72.0	72.0	35.67	-
21	80.0	79.9	79.8	.82	-	71.7	71.7	71.8	35.67	-
22	81.1	79.9	79.8	.87	-	71.7	71.7	71.7	35.62	-
23	80.1	80.0	79.9	.83	-	72.1	71.8	71.8	35.69	-
24	79.0	78.9	78.8	.83	35.83	71.5	71.5	71.5	35.56	35.57
25	79.0	79.0	79.0	.71	-	71.4	71.3	71.5	35.47	-
26	77.1	78.0	78.0	.63	-	71.0	71.0	71.1	35.51	-
27	76.0	76.3	76.2	.70	-	70.4	70.4	70.6	35.47	-
28	75.6	76.0	76.0	.58	-	70.1	70.1	70.1	35.38	-
29	76.7	76.5	76.4	.72	-	-	-	-	35.16	-
30	76.2	76.4	76.3	36.23	-	69.1	69.1	69.2	35.31	-
31	-	-	-	-	-	69.2	69.1	69.2	35.24	35.24
Mean	80.2	80.0	79.9	35.69	35.79	74.0	74.0	74.0	35.74	35.72

Table 17 (cont'd)

SAVANNAH LIGHTSHIP 31°56.5'N. 80°39.6'W. Depth of water - 72 feet

1956

Day	November Temperature °F 0'	30'	48'	Salinity °/oo 0'	48'	December Temperature °F 0'	30'	48'	Salinity °/oo 0'	48'
1	68.7	68.7	68.7	35.24	-	58.3	58.4	58.5	35.92	-
2	69.1	69.1	69.0	.32	-	58.0	58.1	58.3	35.79	-
3	68.9	68.7	68.7	.56	-	56.2	57.4	58.0	34.93	-
4	68.9	68.8	68.8	.80	-	56.8	57.3	57.3	35.44	-
5	68.3	68.3	68.3	.72	-	55.3	56.4	56.4	.31	35.45
6	68.2	68.2	68.1	.77	-	56.7	57.8	57.8	.05	-
7	68.1	68.1	68.2	.78	35.76	58.1	58.1	58.2	.56	-
8	67.6	67.9	67.9	.68	-	58.2	58.2	58.3	35.32	-
9	67.0	67.0	67.1	.39	-	57.7	58.3	58.3	33.70	-
10	65.4	65.8	66.0	35.73	-	58.7	59.0	60.2	35.25	-
11	63.4	63.9	65.4	34.04	-	58.4	58.4	58.5	.37	-
12	64.2	64.2	64.2	35.32	-	58.3	58.4	58.6	.15	35.22
13	63.8	63.6	63.8	.40	-	59.0	58.5	58.4	.14	-
14	64.8	64.2	-	.34	35.37	59.3	59.2	59.2	.02	-
15	64.2	64.2	64.2	.54	-	59.0	58.9	58.9	.02	-
16	65.6	65.5	65.5	.43	-	59.3	59.3	59.3	.17	-
17	66.2	65.9	65.8	.41	-	59.4	59.4	59.4	.14	-
18	65.0	65.1	65.2	.44	-	59.	-	-	.21	-
19	64.3	64.5	64.6	.60	-	60.0	59.9	60.0	.71	35.70
20	63.9	64.1	64.1	.58	-	59.9	59.9	59.9	.88	-
21	63.7	63.7	63.6	.60	35.59	59.9	59.9	60.0	35.80	-
22	63.7	63.8	63.8	.45	-	60.2	60.1	60.1	34.91	-
23	62.2	62.3	62.3	.49	-	60.2	60.2	-	35.07	-
24	61.0	61.0	61.5	-	-	60.1	60.1	60.1	34.89	-
25	60.6	60.6	60.6	.11	-	60.3	60.2	60.2	.77	-
26	60.0	60.0	60.0	.13	-	59.3	59.8	-	.64	34.62
27	52.4	53.1	53.3	35.58	-	58.3	58.6	59.3	.15	-
28	57.0	57.7	-	34.98	35.26	58.9	59.0	59.0	.84	-
29	58.2	58.2	58.2	35.55	-	58.3	58.7	58.7	34.85	-
30	58.4	58.4	58.4	35.79	-	56.8	57.1	57.1	35.09	-
31	-	-	-	-	-	57.5	57.2	57.3	35.06	-
Mean	64.1	64.2	64.5	35.44	35.50	58.6	58.7	58.8	35.13	35.25

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